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ORIGINAL ARTICLES.

SPORADIC CRETINISM, WITH REPORT OF A CASE TREATED WITH THYROID EXTRACT.

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Up to within recent years the object of the thyroid gland in the human economy was not understood. Bruecke, in his excellent work on physiology, tells us that not even an hypothesis had been advanced as to the function of that organ. It was thought that the thyroid body might be entirely excised, or completely disorganized or destroyed by some morbid process, without any noticeable changes of harmful results occurring. The failure of the older observers to determine the function of such an important organ may have been due to the circumstance that in their experiments they failed to entirely excise the gland, or to the fact that the characteristic disturbances after excision appear late, not until the secretion, stored in the system, has been exhausted. The relation between the late symptoms and the ablation of the gland may have been lost sight of for that reason. The brilliant researches of Schiff, Horsley, and Murray were rewarded with better results, however, and the profession is indebted to these patient and careful investigators for all that is known of the function of the thyroid gland. They showed conclusively that this gland plays a momentous rôle in normal metabolism—the power living cells possess of appropriating, from the ultimate products of digestion brought to them, those substances essential to their growth and development into maturity, and of maintaining their individuality after arriving at maturity. It was further proved by Ord, Kocher, and others that the symptoms resulting from an extirpation of the thyroid gland are identical with those of myxedema, a disease that was accurately described as early as 1873, but of the cause of which nothing was known. The inference that surgical myxedema, or cachexia strumipriva, was dependent upon the same cause, namely an absence or complete disorganization of the thyroid body, was but natural and unavoidable. Ord was the first one to call attention to the fact that cretinism is

but a congenital form of myxedema. The great Brown-Séquard, the father of organotherapy, long since has shown that diseases arising from a lack or an absence of the normal secretion of a certain gland might be successfully treated with the healthy juice of that organ obtained from lower animals; but it remained for Horsley, Schiff, and Murray to first demonstrate the marvellous healing power of the thyroid juice in myxedema. Horsley and Schiff first proposed the treatment of myxedema and cretinism by the grafting of the sheep's thyroid; Vasale then used intravenous injections of thyroid juice; and Murray, injections of a glycerin extract of the gland. The experiments of the latter attracted by far the most attention, and were most instrumental in acquainting the medical profession with the extraordinary effects of thyroid-feeding in myxedema and cretinism. Howitz was the first to give thyroid extract by the mouth; and, as this is a very effective and convenient form of administering it, it is now in general use.

Those interested in this subject should not fail to read the valuable paper on the "History of the Thyroidtherapy," by Dr. S. J. Metzger, in *The New York Medical Journal* for April, 1895, from which I have drawn, and who gives a much more complete history of the evolution of thyroid-feeding than I have attempted. Like most discoveries in medicine, our knowledge of the function of the thyroid gland, of the disastrous results of disturbed or annihilated function and of the proper and specific remedy for the relief of those disturbances, was gained by experiments on lower animals. The researches of Ord, Kocher, and others resulted in establishing the identity of myxedema, cachexia strumipriva, and cretinism. The close relation existing between goitre and cretinism has long been suspected, cretinism being of frequent occurrence in those countries or districts in which goitre is rampant. The benign, parenchymatous goitre is of course here alluded to, and it is now thought that simple parenchymatous enlargements of the gland are the effect of an extra effort on the part of the gland to supply the system with sufficient normal secretion. In Dr. Ashmead's opinion cretinism is but the consequence of goitre. To his mind both diseases are evidences of the approaching extinction of

the human race, the closing act in the drama of human life, ushered in with goitre and brought to a gloomy close by cretinism. Opinion has been advanced that exophthalmos is the result of hyperthyroidization, or excessive secretion; and this supposition seems to be supported by the fact that by feeding myxedematous patients too large amounts of the thyroid juice, symptoms not unlike those of exophthalmic goitre are produced.

Cretinism might be defined as being a disease characterized by profound disturbances in nutrition, resulting in arrest of growth and development of body and mind, the characteristic changes in the body finding expression in a stunted and dwarfish stature and general tumefaction of the skin, those of the mind in imbecility, or even idiocy. The etiology of this disease is a varied one. It is endemic in certain mountainous regions, as the Alps, Pyrenees, Vosges, Jura, and certain districts of Central and South America. Sporadically, it is met with in nearly all countries of the globe. It has been stated that cretinism is endemic in the valleys of Vermont, Massachusetts, and California; but as an evidence of the rarity of this disease in North America, it is only necessary to refer to the circumstance that Osler,¹ in his exhaustive monograph on this subject, found that up to 1893 only eight cases had been reported in this country. Since then cases have been reported by Crary,² Lloyd,³ Townsend,⁴ Mills,⁵ West,⁶ Sinkler (two cases),⁷ Fruitnight and Brown.⁸ The case here related is, as far as I know, the first one treated in the West.

Altitude has been thought to play an important part in the etiology of cretinism, but cretins are found in valleys as well as in mountainous regions. Water rendered impure by an excess of magnesia, glacier water or snow-water imbibed before it has become well aerated, have been thought of as causes in the production of this disease, but cretins are found in regions where the inhabitants never drink snow or glacier water, and where it does not have an excess of magnesia or lime. Inasmuch as cretinism occurs under such varying circumstances, it may be possible that some specific *materies morbi* is responsible for its production. In-and-in-breeding, lack of sufficient and proper nourishment, and other agents that lessen the individual's power to resist disease in general

will no doubt also increase tendency to cretinism. The disease may begin early or late in intra-uterine life, but usually makes its appearance between the second and fifth years.

The symptoms of this disease are so characteristic that they cannot readily be mistaken, and are clearly defined in the report of my case.

The administration of thyroid extract or juice, obtained from healthy thyroid glands of lower animals, preferably sheep's thyroids, constitutes the sole effective treatment of this rare disease. It is thought that the active principle in these thyroids is a nucleo-albumin,⁹ but I do not know whether manufacturing chemists have been successful in separating this proteid from the thyroid gland.

Our little patient was first seen by me on the 2d of September, 1895, and his appearance was so characteristic that no difficulty was experienced in arriving at the diagnosis of cretinism. He was born in Missouri, close to the mouth of the Missouri river. Parents are not blood-relations. The father is healthy, 38 years of age, and immigrated from Baden, Germany. The mother is about 35 years of age, was born in this State, and has been in perfect health up to about seven years ago, since which time she has had occasional attacks of epilepsy, or seizures simulating that disease. The patient has four sisters, 10, 7, 4, and 2 years, respectively; two brothers, aged 8 years and 8 months, respectively; they are all healthy and well developed. One brother died in childhood as a result of some fever. Our patient was born 6 years ago. The labor was slow and tedious, lasting three days, but no instruments were used. The mother is certain that the period of gestation was in this case prolonged, lasting ten months. The child was born with an extraordinarily large head, large, broad face, thick lips and tongue. The mother noticed at once that its voice was different from that of the other children. Physical and mental development was slow. Was not playful like other children, took little interest in his surroundings, and could only with difficulty be made to laugh or notice things. He was 19 months old before he could stand up. The child grew thicker and gained but little in height. The limbs became crooked, fat, and clumsy; he slept much and ate but little. The mother tells us that the fecal discharges of this child were always peculiar; they were large in volume, large in quantity, and hard.

From the above history it is evident that the child came into the world stigmatized with the unmistakable marks of cretinism; and if the mother's statement as to the duration of the period of gestation is correct, it would seem that *in utero* even the development of these cretins is slow and abnormal, and that they require a longer

¹American Journal of the Medical Sciences, Nov., 1893.

²American Journal of the Medical Sciences, Nov., 1893.

³International Clinics, Vol. 2, Ser. 2.

⁴Archives of Pediatrics, Nov., 1892.

⁵American Textbook of Diseases of Children.

⁶Archives of Pediatrics, 1895.

⁷International Med. Magazine.

⁸Archives of Pediatrics for Feb., 1896.

⁹The Journal of Physiology, 1894.

time to arrive at a viable age than normal children. My notes at this examination describe the following state of affairs: Though 6 years of age, the little fellow is of the height of a child aged about 2 years. He has an enormous head, covered with a heavy, dirty layer of dandruff. The anterior fontanelle is as yet not closed. The expression is characteristic of cretinism; he looks very stupid, almost idiotic. His face is broad; nose flat and turned up; face and lips much swollen; tongue, also, much enlarged, and most generally protrudes from the mouth. Neck short and thick. The entire body and the extremities much swollen, and he presents an appearance not unlike that of an extremely fat baby. Arms and legs, as well as the fingers and toes, are short and

FIG. 1.



(From a photograph when first seen.)

plump. The skin over the entire body, instead of being natural, soft, and warm, is firm, cold, hard, and unpliant, and is never moist with sweat. There is no pitting upon pressure. The abdomen is enormously enlarged. Percussion and palpation do not reveal any enlargement of the liver or the spleen. Resonance is tympanitic over entire abdomen, as if stomach and intestines were distended with gases.

A side view shows marked lordosis, most prominent in lumbar region. The testicles have not descended into the scrotum; scrotum and penis small. The joints are somewhat thicker than usual and stiff. Legs are markedly curved; he walks with difficulty, and in an uncertain tottering manner, and falls readily when knocked against. The head, as already stated, is covered with a thick, dirty scum, which the mother is

unable to wash away; the hair is stiff and scant, and lacking usual lustre. He walks but little; can say a few words intelligently, in an intelligible manner, and only his parents can understand what he wants. But his wants are but few, and he is always good-natured and still. He sleeps a great deal; goes to bed early, and usually sleeps until noon next day. His voice is coarse and unnatural. There is no difficulty of deglutition, but swallowing is accompanied by a peculiar gurgling noise. Dyspnea is rarely present, and never very marked. Dentition was delayed, but teeth fairly good. Hearing, taste, and smell appear to be normal. Heart normal; pulse 110 per minute; temperature slightly below normal. He never had convulsions; never suffered with hemorrhages from mucous membranes; no fatty tumors are found in the supraclavicular region. The thyroid gland appears to be absent; at any rate, we are unable to find any evidence of same. The accompanying photograph, No. 1, and the measurements taken at this examination, will show the exact condition of our patient at this time.

Such was the mental and physical condition of our patient. The diagnosis of cretinism was therefore an easy matter, and thyroid-feeding at once suggested itself. I called in Dr. J. H. Bruere, of this city, who agreed with me as to diagnosis and treatment. I also consulted Prof. Frank P. Norbury, of St. Louis, who advised the use of thyroid extract. I am greatly indebted to Dr. Norbury for many valuable suggestions as to the proper treatment of these cases, and of measures tending to improve the mental as well as physical condition of the little fellow. Immediately upon the exhibition of this remedy he began to improve, and at the close of the first week a decided decrease in weight was observed. The loss of weight was most marked during the first six weeks of treatment, and at the end of the first two months he had lost twenty-two pounds. He had gained over an inch in height. At this time I again had the boy photographed, and took measurements, which will be found at another place. The face and lips were much thinner, the legs were straight, the stature more erect, and the entire body much thinner. The skin was soft, warm, and natural. When coming to my office he had walked a distance of five blocks, which he had never done before. The anterior fontanelle was nearly closed, the hair soft and natural. The gurgling noise, when swallowing, was absent, and his voice was natural. His mental condition, too, had much improved. He is now much brighter. He can say entire sentences in an intelligible manner. He takes a lively interest in his surroundings, and delights to play with other children. But he has lost his good-natured disposition; is easily irritated. He does not sleep more than other children, and is an early riser. He has now an enormous appetite, though constantly losing

weight. To the mother it seems that the head is sunken in; that the neck is longer and the joints more supple. In one word, his general condition, physical as well as mental, has considerably improved; his appearance, however, remains markedly cretinoid (Fig. 2). The photograph and measurements taken at the last examination a few days ago, and five months after the beginning of treatment, show a decided improvement in the general condition of the little fellow. In fact, the change is most remarkable. He now has a healthy appearance. The face has a much more intelligent and natural expression. The edema of the skin and subcutaneous tissues has disappeared. The skin is soft and warm. An abundant growth of soft and natural hair covers the

FIG. 2.



(From a photograph five months later.)

head. The anterior fontanelle is closed, and all dandruff scales have disappeared. The lordosis and the prominence of abdomen are scarcely noticeable. His legs are straight, and he can now walk several miles without becoming fatigued. But for his age he is still very small, and rather clumsy in his walks and movements, and, also, intellectually he is considerably behind children of his age. But the splendid results obtained by Osler, Sinkler, Starr, Crary, West, and Lloyd, in this country, and a number of observers abroad, justify the expectation that this little patient, too, will entirely recover, and attain the somatic and mental condition of an ordinary normal child.

It will be observed that the loss in weight was most marked during the first two months, and continued until the patient had lost 24 pounds at the close of the third month, when he began to gain; the increase in height, of course, continued, and amounted to four inches in five months. During these five months he has taken uninterruptedly $\frac{1}{2}$ grain of Parke, Davis & Co.'s Thyroid Extract three times a day. As no ill effects resulted, and as this amount seemed to act splendidly in our case, the dose was neither increased nor diminished. It has been pointed out by other observers that cretins bear thyroid extracts particularly well, and symptoms of thyroidism do not occur in these patients nearly as readily as in acquired or surgical myxedema. Thyroid extracts have been recommended of late in obesity, goitre, and in exophthalmic goitre. The rapid loss of weight, following the exhibition of thyroid extracts in a large number of cases of obesity, would seem to show that a lack of normal thyroid secretion is a prominent factor in the production of obesity, and that the judicious administration of thyroid extracts supplies this want. In recent years thyroid extract has been much employed by W. O. Taylor, Bruns, Kocher, and others in cases of simple benign goitre, and the results of this treatment have been found entirely satisfactory. In the young, particularly, thyroid-feeding is usually followed by a rapid decrease in the size of the tumor, or complete disappearance of the goitre. A cessation of treatment, however, has been followed by a return of the goitre. Thyroid juice has also been recommended in exophthalmic goitre, a disease which, it is now held, results from excessive thyroidization. Most observers, like Auld,¹ Eulenberg, Dr. H. W. Herman, of St. Louis, and others, have found that all the distressing symptoms of exophthalmos are aggravated by the administration of thyroid extracts, while Voisin² claims excellent results for the treatment.

MEASUREMENTS.

At the beginning of treatment.		2 months later.		5 months later.	
19 $\frac{3}{4}$ in.	Head.	Circumference From extr. meatus to extr. meatus. From root of nose to occip. pro.		19 $\frac{3}{4}$ in.	19 $\frac{3}{4}$ in.
12 $\frac{1}{2}$ in.				12 $\frac{1}{2}$ in.	12 in.
13 $\frac{1}{2}$ in.				13 in.	12 $\frac{1}{2}$ in.
22 in.	Chest.	Measured over nipples.		21 in.	21 in.
22 $\frac{1}{2}$ in.	Abdomen			21 in.	20 in.
24 in.		Sitting.		22 in.	20 $\frac{1}{2}$ in.
32 $\frac{1}{2}$ in.	Height.			33 $\frac{1}{2}$ in.	36 $\frac{1}{2}$ in.
7 in.	Arm.	Circumference.		6 in.	6 in.
5 $\frac{1}{2}$ in.				5 $\frac{1}{2}$ in.	6 in.
7 in.	Forearm.	Circumference.		6 $\frac{1}{4}$ in.	6 $\frac{1}{4}$ in.
5 in.				6 $\frac{1}{2}$ in.	6 in.

¹ *British Med. Journal*, July, 1894.² *Gazette médicale de Paris*, 1894.

MEASUREMENTS.		2 months later.	5 months later.
At the beginning of treatment.			
12 in. Thigh.	Circumference.	11 in.	10½ in.
9 in. Leg.	Circumference.	7½ in.	7½ in.
Neck.	Measured around neck.	9¾ in.	9¾ in.
54 lb.	Weight.	32 lb.	35 lb.

These varying results, however, are not so much at variance as they would seem to be at first glance. As is well known, continued morbid or excessive functional activity of a gland will eventually result in structural disorganization and total arrest of function. Hence it might be conceived that at one time the administration of the thyroid extract would be absolutely harmful; at another and later time, of decided advantage. There can be no doubt, however, as to the efficacy of thyroid-feeding in cretinism and other forms of pachydermic cachexia. In fact, it is the unanimous verdict of those who have had an opportunity to witness the marvellous changes wrought in these patients, that there are few diseases so amenable to treatment as cretinism, and few remedies more effective than thyroid extract.

WHAT IS THE VALUE OF OPERATIVE INTERFERENCE IN THE TREATMENT OF EPILEPSY?—BASED ON AN ANALYSIS OF SEVENTY CASES TAKEN FROM CONTEMPORANEOUS LITERATURE.¹

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WHEN we consider the rapid advances that have been made in surgery and localization in the past few years, we cannot wonder that the brain has been invaded in a search for the cure of epilepsy, that *bête noir* of practitioners of medicine from the very earliest time of which we can trace any record of medical matters. Again, when we think of the almost indefinite number of drugs that have been given empirically from time to time,—some of them worse than useless, others of undoubted value,—and how wide this disease has opened the door to quackery and charlatanism, we wonder even less that the poor sufferers have overcome the instinctive dread of the knife and turned to the surgeon, asking him to do what in his judgment he thought best. The zeal with which skulls of epileptics were attacked a few years ago, when the advent of antiseptic surgery and experimentation in localization, almost simultaneously, forced themselves so vividly upon our minds, has had its counterpart in other branches of medicine, notably the several "cures"

for consumption, which startled the world for weeks or months and then disappeared. This comparison, however, is hardly fair, for operation for the cure of epilepsy (and in this paper I will limit the meaning of operation chiefly to trephining) is a rational procedure, and has come to stay; though that it has been very much overdone, or rather that it has been done ill-advisedly and that the cases for operation have been selected with very bad judgment, cannot be successfully denied. Happily a reaction is now beginning to set in. Any one who has had occasion to look up the literature of the past ten years must be struck by the difference in the tone of the reports of eight and ten years ago as compared with those of the last eighteen months. Formerly everything seemed to be bright, roseate, and optimistic; now there seems to be a determination to calmly and dispassionately try to arrive at an understanding as to what constitutes a cure of epilepsy. Formerly, in many journals, we would see reports headed thus: "A Case of Traumatic Epilepsy of Ten Years' Standing. Trephining; Complete Recovery," or thus: "Trephining for Epilepsy. A Report of Three Cases Cured." Then frequently, after an incomplete or confusing history of the case, in which the fit was not described with any accuracy, you would read that "the patient was trephined over the right Rolandic fissure, and, as nothing abnormal was seen, the wound was closed and the patient went on uninterruptedly to recovery." The next paragraph is probably dated four weeks after the operation and reads: "Patient having had no return of his fits, is discharged cured," the "cured" not infrequently being written with a big C. This is a true portrayal of what apparently, to certain minds, constituted a cure of epilepsy a very few years ago. At the present time the reports read differently. Men seem to be more cautious, more doubtful in claiming cures. They allow more time to elapse between the operation and the report of the case, or they frankly say that not enough time has elapsed since the operation to warrant them in saying how permanent the improvement (if there has been any) will be. The pendulum is swinging the other way, but let us not allow it to swing too far. The experimental physiologist, the clinician, and the surgeon working hand in hand will surely produce results that will lead to a more careful isolation of the operable cases, and thus establish trephining for epilepsy on a more rational and stable basis. The trouble heretofore has been that the cases for operation have not been selected with sufficient care; surgeons have reached too hastily for

¹ Read at a regular meeting of the New York Medico-Surgical Society, January 6, 1896.

the knife and the trephine; they have not reasoned thoroughly and have not discriminated well between those cases to which operation offered a probable relief and those to which it did not. Many poor, old, imbecile epileptics have had holes sawed in their skulls when it was almost as useless to think of stopping their fits as it would be to think of turning back Niagara with a dam of feathers. Again, statistics and reports of cases operated upon have been so frequently misleading because an insufficient time has been allowed to elapse after the operation to justify the opinion as to which were cured and which were not. As a rule these reports have been entirely too optimistic. This brings up the question. What is a cure of epilepsy? This is a very difficult question to answer, and one which, in statistical tables, must be determined arbitrarily. We should not lose sight of the fact that there is frequently a spontaneous remission of the fits; that a change in treatment, even though it be from some of the drugs of known value to a mere placebo, may be followed by a temporary cessation; a mere change of environment will do the same, and any operation, whether it be on the brain or on the buttock, will usually do as much.

The table upon which this article is based is made up of forty-four cases,¹ that I tabulated at the request of my friend Prof. Landon Carter Gray for his article on Epilepsy in "Nervous Diseases by American Authors," to which I have here added twenty-six cases,² all having been taken at random from medical journals, making seventy cases in all.

In this table I have regarded as *cured* all cases in which there has been no return of the fits within three years after the operation; *i.e.*, all cases which have been under observation for three years or more after the operation, and in which there has been no return of the fits during that period.

With this as a basis I get the following results:

Cured	3
Improved	6
Not improved	14
Death due to operation	3
Improvement; return of fits; malignant brain disease	1
Cases in which there was cessation of fits one year after operation, but in which bromides were used	2
Temporary improvement; time of observation not given	3
Cases in which time of observation after operation was insufficient to make them of value in statistical tables	38
Total	70

¹ See "Nervous Diseases by American Authors," pages 304 to 311 inclusive.

² See accompanying table.

After a careful tabulation of these cases, and after having invariably given the benefit of the doubt to the reporter, we can only find undoubted cures in three cases (4.3 per cent.), and improvement of more than one year's duration in six cases (8.6 per cent.), while there was unquestionably no improvement in fourteen cases (20 per cent.). Surely this is not a brilliant showing. The percentage of the cured and improved together is only a little more than half as much as the percentage of non-improved. Going still further we find there are thirty-eight cases—54.4 per cent.—in which the time of observation after the operation was not sufficiently long to justify a decided opinion, though a glance at the table will show that extravagant claims were made in not a few cases. It is only fair, however, to say that in these cases there was generally an improvement, sometimes unquestionably so, though usually it was temporary. A question which, to my mind, seems *à propos* is, How much of a probable improvement will justify resorting to so serious an operation as trephining? I know some surgeons will smile and probably throw up their hands in amazement when I speak of trephining as a serious operation, for I have frequently heard the rather flippant remark that trephining under present antiseptic conditions could not be considered dangerous. In answer to this I will only point to my table, where we find three deaths—4.3 per cent.—directly due to the operation; not a small mortality for an operation devoid of danger. The best answer which I can suggest to my question is, Never hastily decide on an operation; take carefully into consideration the patient's environment and his position in life; consider how much his epilepsy interferes with the performance of the duties of life; how far it has been, or probably can be, controlled by drugs; then, if it is an operable case and you think the probable benefits will outweigh the risk involved, operate. When we think how few cases my statistics record when compared with all the cases that have been operated upon, we must easily see how many, many persons have been subjected to this operation when it was useless to expect benefit. It is needless at this time to call your attention specifically to cases of this kind in the table; it does not take a trained eye to detect them. How much better it would have been had these cases not been operated upon! This enormous amount of dangerous work would have been avoided, statistics would have been more accurate, and there would not be so great a preponderance of cases on the wrong side of the

Reported by, or Operator.	Date of and Character of Trauma.	Interval between Trauma and Appearance of Fits.	If no Trauma, Age at which first Fit occurred.	Character of Fits.	Interval between Fits before Operation.	Interval between Appearance of Fits and Date of Operation.	Date of Operation.	Kind of Operation.	Lesion Found.	Interval between Operation and First Fit thereafter. Number of Fits thereafter.	Result as stated by Reporter.	Length of time under Observation after Operation.	Reference.	Remarks.
45 J. Allison Hodges.	When one yr. old. Elevation on left parietal bone above temple ridge. Fell on wooden block.	One week. Next six months afterward.	.....	Not given, though suppose convulsions were general.	For two years before operation, as many as 19 daily.	19 years.	.....	Trephine over seat of injury. Dura detached.	Dura firmly adherent, thickened, congested and vascular.	Two slight attacks about 6th day.	.....	1 month.	<i>Virginal Monthly</i> , 1894-95, xxi, 942-947.	Time of observation sufficient.
46 J. Allison Hodges.	1894; minnie ball. Depression above and parallel to horizontal line of left squamous suture.	Six months.	.....	<i>Petit mal</i> . Increasing loss of memory.	As many as 5 or 6 daily.	30 years.	.....	Trephine.	Both table's in thickened; dura not adherent.	One same night; two more 3 days later.	Slight aphasia and paralysis of one leg about 10th day, but are now passing away. Great improvement in memory.	6 months.	<i>Ibid.</i> and <i>N. Car. Med. Jour.</i> , 1895, xxxv, 33.	Improvement as to memory.
47 J. T. Boutelle.	Five yrs. old; head cut with ax; 16 years old, blow on head from fist. Linear depression, 2 inches long over middle of ant. 1/2 of left parietal bone.	"Shortly after" second injury. Increased in severity.	.....	Not given, but suppose they were general.	One to 32 years. weekly.	32 years.	.....	Trephine. Removal of piece of bone projecting downward to dura.	Piece of bone pressing on dura.	One week.	For six months no fits. Hears they are now "as bad as ever."	6 months.	<i>Virginal Monthly</i> , 1894-5, xxi, 813-824.	No improvement.
48 J. T. Boutelle.	Six years old; blow on head; depression of bone.	Ten years.	.....	At first <i>petit mal</i> ; afterwards, severe and "convulsive."	Frequent.	23 years.	.....	Trephine: Removal of depressed bone.	Depressed bone; dura slightly adherent.	One week after operation; acute mania due to excitement; fits 2 months.	"Now are as bad as ever."	2 months.	<i>Ibid.</i>	No improvement.
49 W. Alexander.	1884. "Sunstroke." Injury to left side of head. "Depressed scar."	"Soon after."	.....	General tho' right side, especially right arm more affected. Memory dull.	As many as 7 daily.	4 years.	Oct. 1888.	Trephine over depressed varium 3 square in. square removed.	"Appeared to have been per-ostitis, and some erosion of bone, with adhesion of skin to calvarium."	Seven days. Not so frequent as before. Mental condition much improved.	"Distinctly improved. Able to work on a farm."	5 years.	<i>Brit. Med. Journal</i> , 1893, ii, 1149-52.	Improvement. Was kept on borax for a long time after operation.

Case No.	Reported by, or Operator.	Date of and Character of Trauma.	Interval between Trauma and Appearance of Fits.	If no Trauma, Age at which first Fit occurred.	Character of Fits.	Interval between and Number of Fits before Operation.	Interval between first Appearance of Fits and Date of Operation.	Kind of and Location of Operation.	Lesion Found.	Interval between Operation and first Fit thereafter. Number of Fits thereafter.	Result as stated by Reporter.	Length of Time under Observation after Operation.	Reference.	Remarks.
50	W. Alexander.	December, 1888. Struck on left side of head between parietal eminence and occipital protuberance.	6 weeks.	.....	General and <i>petit mal</i> . Memory and sight failing.	As many as two in one day.	May 15, 1889.	Trephine. Scar raised from bone	Ridge of bone undamaged. Dura adherent to ridge, but elsewhere smooth.	Thirteen days. One of grand and several <i>petit mal</i>.	.....	1 month.	<i>Brit. Med. Journal</i> , 1893, li, 1149-52.	Length of time under observation after operation is insufficient.
51	W. Alexander.	1876; wound of right temple.	Immediately after and for 3 months. Recovered. No more for nine years when had "epileptic" convulsions.	.....	General. Became stupid.	Two to 15 monthly.	1885 & '89.	1885. Trephine without effect. 1889. Spiculate of bone removed. 1889. Dura opened over seat of old trephining. Cyst evacuated and drained.	Diffuse cystic condition of dura, increasing closing of atrophied cerebral convolutions.	Not given.	Improvement at first. Afterward very much worse mentally. In 1893 showed distinct improvement.	3 years.	<i>Ibid.</i>	Improvement.
52	W. Alexander.	.....	.....	17 years. "Due to exposure to the sun and excitement."	"Looked upon it as one of hystero-epilepsy." Drooping right eye-lid, premonitory convulsive movements of right foot.	Not given. 13 years.	Dec., 1891.	Over left motor area. Two one-inch trephine holes 3 inches apart, and intervening bone removed.	"Dura seemed healthy." Pto-sis and newly developed int-bismus of right eye.	Occasional headaches; "ptosis" and benefited by the operation.	"There is no doubt she has benefited by the operation."	27 days, and then "for some time" under care of a colleague in same hospital.	<i>Ibid.</i>	Time of observation after operation insufficient.
53	W. Alexander.	December, 1890. Blow on the head. Depressed, curved cleft 3 in. long, passing vertex.	4 weeks.	.....	Visual and gesticurae, general convulsions. Irritable temper.	Two weeks only.	December 9, 1891.	Trephine. All depressed bone removed.	Thick, dense bone pressing on dura, near median line. Dura healthy.	Twenty-four days; then two more in next fifteen days.	.....	2½ mos.	<i>Ibid.</i>	On February 29, 1892, patient reported fits had returned. No improvement.

Reported by, or Operator.	Date of and Character of Trauma.	Interval between Trauma and Appearance of Fits.	If no Trauma, Age at which first Fit occurred.	Character of Fits.	Interval between and Number of Fits before Operation.	Interval between first Appearance of Fits and Date of Operation.	Date of Operation.	Kind and Location of Operation.	Lesion Found.	Interval between First Fit thereafter. Number of Fits thereafter.	Result as stated by Reporter.	Length of Time under Observation after Operation.	Reference.	Remarks.
54 W. Alexander.	.....	.....	Patient 15 years old. Fits since infancy.	<i>Petit and grand mal.</i> "Congenital and epileptic convulsions." Nystagmus, stammering. Aura in left thumb.	Numerous daily.	15 years.	January 3, 1892.	Trephine over right motor area, 2 1/2 inches by 2 inches, removed.	"Nothing was found except considerable amount of fluid."	"During March, 1892, the fits left him," and until July, 1893, only two attacks of <i>petit mal</i> .	"Patient is bright, active, intelligent, and so far operation has been a success."	18 months.	<i>Brit. Med. Journal</i> , 1893, ii, 1149-1152.	Improvement.
55 W. Alexander.	Depressed fracture, upper extremity of parietal and adjacent occipital bone, right side. Injury not recent.	Not given.	.....	"Attacks mixed. Began mostly on right side."	Not given.	Not given.	Nov. 20, 1892.	Trephine. Cyst drained.	Calvarium in perfect condition at one spot; atrophied convulsions and enlarged veins.	"Fits much less frequent and mother says are lighter."	"Reporter saw patient last on Oct. 21, 1893."	Reporter last on Oct. 21, 1893.	<i>Ibid.</i>	History insufficient. Observation insufficient.
56 W. Alexander.	"Bump on top of head," middle of left parietal bone; 2 inches below median line, forward to left frontal bone.	.....	No history of trauma.	<i>Petit and grand mal.</i> "The former goes down on knees, unconscious. In a moment get up confused, laugh and go on at play."	Numerous daily.	"Many years."	June 15, 1892.	Trephine. Removal of one square inch and half of thickened bone.	Fibrous layer thick, covering the bone. Bone 1 1/2 inches thick, and dura thickened without any.	"Attacks diminish in a month by usually daily, but several days have passed without any."	"I look upon this case as very hopeful."	16 months.	<i>Ibid.</i>	Report seems to show slight improvement. I think reporter takes too rosy a view.
57 W. Alexander.	1888. Scar over right motor area.	"Soon after."	.....	Left side of face and left hand. Head-aches.	Numerous 5 years.	5 years.	February 2, 1893.	Trephine over right motor area.	"Some excess of fluid was found; otherwise normal."	Not given.	"Head-aches disappear, fits much brighter and intelligent, less frequent in contrast to previous state." "Oct. 21, 1893, still improved."	8 1/2 mos.	<i>Ibid.</i>	History not complete. Subsequent observation insufficient. Reporter takes too rosy a view.
58 W. Alexander.	.....	.....	"Congenital epileptic," 11 years old.	"At first were one-sided."	Not given.	11 years.	March 2, 1893.	Trephine. Removal of depressed bones, 2 1/2 inches, over left motor area.	Depressed bone. "Excess of clear fluid beneath dura. Convulsions looked healthy."	.....	"Child is much improved, learning to spell, and has had fewer attacks since operation."	July 20, 1893 1/2 mos.	.....	History is not complete. Time of observation insufficient.

Reported by, or Operator.	Date of and Character of Trauma.	Interval between Trauma and Appear- ance of Fits.	If no Trauma, Age at which first Fit occurred.	Character of Fits.	Interval between and Num- ber of Fits before Operation.	Interval between first Appear- ance of Fits and Date of Operation.	Date of Operation.	Kind of Lesion and Location of Operation.	Lesion Found.	Interval bet. Oper- ation and First Fit thereaf- ter. Num- ber of Fits thereaf- ter.	Result as stated by Reporter.	Length of Time under Ob- servation after Operation.	Reference.	Remarks.
59 J. T. Eskridge.	1866. Blow on left side of head.	10 years. Second fit one year after.	.....	Numbness and tingling right thumb and fingers, hand, and through- out right side. Convulsive movements then became gen- eral.	Daily for 3 or 4 years before.	18 years.	March 30, 1894.	Trephine over mid- dle one- third of Rolandic fissure. Cortex $\frac{1}{2}$ in diam, by $\frac{1}{2}$ inch thick, in- cluding centr's for thumb and index fin- ger excised.	Bone thick- ened, but no frac- ture, or adhes'n of dura.	Seventeen days. Fit produced by rub- bing cicat- rix of wound. Paralysis of right arm, and lower part right side of face.	Marked im- provement in appear- ance and mental condition. Paralysis of right arm, and lower part right side of face.	2½ mos.	Tr. Col. Med. Soc., 1894, 343- 358.	Time of ob- servation af- ter operation insufficient. Evidently no improvement as to fits.
60 J. T. Eskridge.	April, 1890. Fracture of right parietal bone and de- pression.	Second fit 7 months after.	.....	Specks before eyes, uncon- sciousness, falls; contrac- tion of left hand, and left foot jerks. Then become general.	One or two weekly.	10 months.	September 6, 1891.	Trephine over seat of injury and re- moval of depressed bones.	Depressed bone, 2 in. long, and 3-4 in. in width.	One week; 2d, one month; then one every two or three months; there was a cessat'n for 6 mos. in '93 and '94.	Greatly re- lieved. Men- tal con- dition im- proved.	2 yrs. and 9 months.	<i>Ibid.</i>	Improvement.
61 J. T. Eskridge.	.....	.....	When two days of age had spasms for 2 days. Would fall on right side of face."	"When 3 yrs. old developed epileptic at- tacks. . . . Would fall on right side of face."	From 1 in two weeks to 2 or 3 daily.	Nearly 4 years.	October 9, 1891.	Lin'r Cra- niectomy on right side. Some mos. afterwards the same on left. A strip of bone $\frac{1}{2}$ in. by 2 over left Rolan- dic fissure removed.	.....	Lessened fits for a year after operation, but since then re- curred with consider- able fre- quency.	Con v ul- sions ceas- ed for some time, but have since recurred. Mental im- provement.	About two years.	<i>Ibid.</i>	This was an idiotic child, evidently of the poren- cephalic class
62 Walker.	1874. Struck on head with scissors.	10 years. First fit fol- lowed by phys- ical and men- tal excit'm't.	.....	Begin on right side, and be- come general.	Two to five daily.	About one year.	1894.	Trephine; Evacuati'n of cyst. Spicule of bone re- moved.	Cicatrix in in. long, above left parietal eminence. Fissure in bone, cyst admitting ind. finger spicule of bone.	Not given.	Doubtful.	4 weeks.	Cincinnati Clinic, 1894, N. S., xxxii, 174.	Time of ob- servation af- ter operation insufficient.

66	Ellingwood and Fischer.	1882. Injury to left frontal region. Fever and almost constant headache for 2 1/2 months.	4 months.	.....	Sense of weakness in right side; right hand cramped; wrist flexed and rotated inward to extreme limit; head to left.	About nine yearly.	10 years.	July 1, 1892.	Trephine over hand centre, left side; dura opened. Aug. 20th abscess at side of parietal region; cut and drained.	"N nothing abnormal found."	First fit same day, and six more in a mo. After operation fits ceased for two months.	.....	Too soon to report case, but he is inclined to believe relief will be permanent.	5 months.	<i>Pacific Medical Journal</i> , 93, xxxvi, 65-70.	No improvement.
67	Geo. W. Cole.	Blow over forehead and fissure when 9 years old.	3 years.	.....	Hands first, feet and lower extremities. General convulsions.	At intervals.	2 years.	Not given.	Mallet and Bone large as 50 piece removed from over upper end of left Rolandic fissure.	.....	.....	.....	Too soon to report case, but he is inclined to believe relief will be permanent.	.....	<i>St. Louis Clinique</i> , 1892, v, 44. Abstract of reprint to St. Louis Med. Soc. his belief on.	Time of observation after operation insufficient. Cannot see what he bases his belief on.
68	J. I. Darby.	When 4 years old struck by sharp stick on left side of head.	About 12 yrs. old.	.....	General, but right side affected more than left; mind becoming affected.	Occasional fits for 3 years, but had been getting worse lately.	3 years.	Not given.	Trephine One-half inch but over middle of left parietal bone; portion dural adhesions removed. Dural adhesions broken up.	Depressed cicatrix over middle of left parietal bone; adhesions.	.....	.....	For several months frequently felt aura, and had giddy sensations, but they disappeared entirely, and to date no fits. Mind also cleared up.	6 to 7 yrs.	<i>Alabama Medical and Surg. Age</i> , Aniston, 1891-92, iv, 113-116.	Cure.
69	W. B. Rawson	1885. Knocked down and rendered unconscious.	One day.	.....	Tingling left thumb; spasm of left thumb, arm, shoulder, face; consciousness usually lost. 1886—Probably meningitis, after which visual aura. 1891—Impairment of motion, and sensation in left hand; smell lost; nearly blind.	Increased in number.	Six years.	April, 1891	Trephine 2 1/2 inches down right Rolandic line. Thickened dura cut away, bone discs replaced. Mch., 1892, second operation. Bone discs and adhesions removed.	Cystic accumulation in diameter between pia and thickened dura.	Fewer fits after first operation, but they were soon back. Head-aches.	.....	About one month after second operation.	.....	<i>Brain</i> , 92, xv, 437-442.	Faradization over the site of trephining. Improved motion and sensation. Apparent improvement in fits. Time of observation too short.
70	R. Parker and F. Gotch.	October, 1891. Injury to right side of head.	3 weeks.	.....	Tremor and twitching of left hand, forearm, head, eyes turned to right. Only momentary unconsciousness, but in June, 1892, was first known to fall.	Twenty to 30 daily.	One year.	Dec., 1892.	Trephine over right eye, 1 1/2 inches, bone removed, thumb & wrist centres isolated and excised.	Apparently none; not stated.	Nine fits the same day.	.....	March 6, 1893. Had reported 4 fits daily. "Since then improvement has taken place."	6 1/2 mos.	<i>Brit. Med. Journal</i> , 1893, i, 1101-1103.	Horsely had suggested an excision of the shoulder area. Time of observation too short.

column. As I have said before, the percentage of cured and improved is not great. It is not so small, however, that we should feel discouraged, and we should not for one moment think of abandoning the operation. Let it rather stimulate us to greater zeal in the selection of our cases, to train our minds to a nicer discrimination between the operable and the non-operable; and we will find much more glory will be brought to our profession, much more confidence begotten in the minds of the laity, just as much suffering relieved, and fewer lives jeopardized. In these matters the skill and judgment of the physician will, of course, be the most powerful factors, but there are certain broad principles which should always be borne in mind:

(1) Always consider an epileptic fit as a symptom of some underlying condition. (2) Inquire particularly and very carefully about the first convulsion: What was its apparent exciting cause; what was its character, general or affecting only certain portions of the body, and what portion of the body was affected at the beginning of the fit? (3) If there was an aura, investigate it carefully, as it will not infrequently give a clue as to the seat of the lesion. (4) If there has been a trauma or a suspicion of trauma, shave the head and look carefully for a scar or a depression. If there is evidence of a trauma in a position corresponding to the initial symptoms of the fit, an operation is usually justifiable. (5) If you cannot get a clear history of the case, give a placebo and place the patient under competent surveillance until you can satisfy yourself as to the character of the fits. (6) Do not operate on a porencephalic child and expect to cure the epilepsy. Do not, as a rule, operate on a case of post-hemiplegic epilepsy in a child and expect to cure. (7) Do not operate on an old, idiotic epileptic, a victim of idiopathic epilepsy, with general convulsions of years' standing.

What, then, is the value of operative interference in the treatment of epilepsy? In the light of our present experience, I think it will be fair to put it thus:

- a. A certain small percentage of the cases will be cured.
- b. A certain larger percentage will be improved.
- c. An even larger percentage still will not be improved at all.
- d. An operation upon almost any case will produce a temporary cessation of fits.

Dr. OTTO H. SCHULTZE has been appointed coroner's physician of New York city to succeed Dr. Huber, who recently resigned.

CLINICAL LECTURE.

RACHITIS AND MALNUTRITION.—CARCINOMA OF LIP AND JAW.—FRACTURE OF BASE OF SKULL.

(Delivered at the Buffalo General Hospital.)

By ROSWELL PARK, A.M., M.D.,

OF BUFFALO, N. Y.;

PROFESSOR OF SURGERY, UNIVERSITY OF BUFFALO.

CASE I.—This child, aged five years, is the youngest of five children of a family in very poor circumstances. He has been brought to the clinic to have us ascertain why he has never been able to walk, and to relieve him if possible. This case is not typical of any one lesion, yet we can readily make out that rachitis exists, and perhaps it will be more instructive to show you an atypical case than one which you could scarcely fail to diagnose properly.

As I hold the child in a standing position, you will observe the aldermanic protrusion of the abdomen; but this is not due to fat, for the child is not very well nourished. The liver is large and prominent, and the flabby abdominal wall allows the distended stomach and intestine to project beyond the meagre outlines of the rest of the trunk. Although the child has instinctively contracted the abdominal muscles so as to oppose my efforts at palpation, I can still feel the spleen to be somewhat enlarged. The shape of the head is not very characteristic, though the squareness of the occiput and the prominence of the occipital and parietal bones are readily distinguished. In spite of his age, the anterior fontanel has not yet closed. In examining for it, I find corroborative evidence of the neglect which often leads to rachitis in the presence of parasites. The lower part of the face is not deficient as it is in typical cases of rickets, and the teeth are now in a nearly normal state, though their appearance was very likely delayed; of this we can obtain no reliable information. The chest shows one of the mechanical signs of the disease in the flaring out of the lower ribs. Below the thorax you notice a transverse groove, which is more marked in inspiration, on account of the laryngeal obstruction which usually complicates this disease to a greater or less degree. I can feel the relics of protuberances at the junction of the ribs with their cartilages. The same condition in a higher degree is known as the rachitic rosary. The arms and legs are shrunk and the legs notably deficient in development, considering the age of the child. The bulging at the epiphyseal lines and the bowing of the tibiae and femora are not well marked here, doubtless because there has not been the ability to walk and thus subject the growing bones to the weight of the body before they were in condition to support it.

Rachitis is essentially a disease of nutrition. We do not see in Buffalo the number of severe cases that present themselves in larger, and particularly in more crowded, cities, for we must remember that our city, though twelfth in order of population in the United States, enjoys many of the hygienic advantages of towns of ten thousand inhabitants. Although mild grades of rickets are common, even when we can assign no definite hygienic reason

for it, typical cases are relatively rare in the United States. On the other hand, 80 per cent. of the children who are brought to the dispensaries in London and Vienna are rickety. Not to mention the scientific etiology of rachitis, we may say that its cause is neglect—the neglect of ignorance and carelessness, or the forced neglect of poverty. Hence, other things being equal, we find the most marked and most frequent illustrations of rickets coincident with the grossest ignorance and the deepest poverty. The symptoms of the disease usually manifest themselves at the period of first dentition. As to treatment, the first indication in such a case as this is to make the child clean and comfortable and to supply it with nourishing food in proper quantities and at proper times. Of the tonic treatment designed especially to stimulate the development of bone I do not care to speak at present, as you are undoubtedly familiar with it from your medical lectures.

CASE II.—Our first operative case is a pitiable example of neglect. The patient, a man of 45, had a cancer removed from the lower lip three years ago. Whether the operation was thoroughly done or not, we have now no means of ascertaining. Some time after the operation, however, he noticed a mass involving the lower jaw, which has been allowed to grow till his condition is now very serious. He has also some facial paralysis on the side of the tumor. Such paralysis may be due to atrophic changes produced by pressure on the seventh nerve in a variety of ways; but in a case of this sort we would naturally ascribe it to the presence of the cancer, though the possibility of inflammatory trouble in the passage through the temporal bone, or of other lesion which might occur in a person not the subject of malignant disease, must not be forgotten. I presume, however, that the paralysis is due to the pressure of the cancerous mass at some point after the nerve has emerged from its foramen. I have told the patient that the operation may not be ultimately successful, and that he may even die as the immediate consequence of an attempt to remove the mass, and that any operation which could be seriously considered as affording him a chance for relief will involve the sacrifice of half the jaw-bone. Notwithstanding that I have given him no encouragement as to the result of the operation, he has not been deterred, and has almost insisted on my giving him whatever chance surgery can afford.

CASE III.—This patient was struck yesterday by a Belt-line train. He suffered severe contusions about the head and he has been bleeding from the ears and nose, so that the question has arisen as to whether there is a fracture of the base of the skull. If there is a depression of the outer table, we shall know where to look for a possible depression of the inner table also, yet we must bear in mind that one table may be broken without a corresponding lesion of the other. If the inner table be broken, a meningitis may develop on account of the irritation caused by the pulsation of the brain against the sharp edge of the broken bone; again, if an acute meningitis is not thus caused, a localized chronic form may develop, with thickening of the membranes and sclerosis of the cortex in immediate contact, and then we have all the

conditions favorable to the development of epilepsy later on. Thus it is at present considered good surgery to make an exploratory trephining in any such case, to remove the depressed fragments or restore them to their proper level, and then allow the case to go on to a perfect recovery—perfect at least so far as the result of the operation is concerned, for aseptic interference need produce no trouble nor add to the gravity of the case.

The one great lesson to be learned from cases of this sort is not to trust too much to nature. We must also be cautious about giving too favorable a prognosis and about judging the condition of the inner table from external appearances. I can recall three or four cases in which the outer table was absolutely intact, except for a slight fissure, when there was no loss of consciousness, and yet the result of operative interference showed that the inner table was depressed and amply justified the exploratory trephining. If these cases had been left to nature, either acute meningitis would have developed (when the patient would almost certainly have died) or else the later fibrous changes would have led to epilepsy.

Once in a while it is better to leave the patient to the chance of a spontaneous recovery, rather than to operate without proper preparation. It does not require much attention to aseptic details, however, when it is only necessary to go through the skull without penetrating the dura. Often we have had patients brought to the Fitch Hospital with penetrating wounds of the skull filled with cinders and dirt, and we have cleaned out the foreign matter, sewed the wound without drainage, and had union in thirty-six hours. We could not expect such a result in other parts of the body, but the vascularity of the scalp is such that phagocytosis is at its greatest activity, and so, too, is the reparative power of the cells. It is necessary, however, to remove the foreign matter absolutely and render the field of operation thoroughly aseptic in order to have union by first intention. Still, if you are so situated that perfect-asepsis is impossible, the patient will, in all probability, recover if the brain is not exposed.

You will notice swelling and redness about the eye. This is due to the extravasation of blood into the large amount of loose cellular tissue that surrounds these parts. The wound is a curvilinear tear over the right anterior parietal region. I will enlarge the wound, carrying the incision in a horse-shoe shape. I am now down upon the fracture, which is simply a fissure in the bone, into which I can merely drive the flat end of a probe. We cannot tell how large the fracture may be in the internal table. With the chisel I detach a long sliver of bone, starting just above the orbit and running parallel to the fracture. Now, under the force of the mallet striking the chisel, fifteen or twenty cubic centimetres of clotted blood and grumous material well up from beneath the bone, having been lodged either between the skull and the dura or between the dura and the pia.

The appearance, now that I have penetrated the bone, shows the wisdom of interference. The innocent-looking fissure has led down to a wound in the brain tissue, from which there is still considerable oozing of blood. I am trying to stop the hemorrhage by stuffing gauze into the

wound. Now, after biting off the margins of the bony opening with the rongeur, I have exposed the smooth, shining surface of the dura, from which the brain protrudes in a mass as large as a hickory-nut. The pulsation can be plainly seen in the protruding cerebral tissue, but not in the dura. Most of the hemorrhage comes from a vein in the dura, and this I will ligate with fine catgut.

The suspicion of fracture in the middle fossa of the skull, on account of hemorrhage from the ear, renders the prognosis much more guarded than it otherwise would be. There is some dilatation of the pupil on the right side that makes me suspicious of a clot on the opposite side of the brain. Still, in the absence of paralysis, I do not feel justified in trephining on the other side. We shall therefore await developments. The pulsation in the brain is beginning to be more free; it is slow, corresponding with the pulse—40 to 50.

There is some hemorrhage from the margins of the bone, which I shut off by pinching the bone together with forceps. Some little bleeding points that remain I close by pressure with a sharp-pointed probe.

In a case like this, when it is certain that there will be some inflammatory exudate, it is a great mistake to tightly sew up the dura. By so doing you increase the pressure on the brain and to that extent defeat your object in operating. As the exudate organizes, the wound in the dura will unite. Neither do I believe that there is any necessity in cutting off the protruding mass of brain tissue. I shall simply tuck in gauze so as to cover the dural wound and then dress the remainder of the wound in an antiseptic manner, uniting the scalp in part, but leaving room for drainage.

I have seen two or three cases of undoubted basal fracture which recovered without operation, and in which, from the pressure signs, there must have been some hemorrhage. Laplace, of Philadelphia, has recently operated on such a case, churning up the clot and evacuating it; but it may be questionable whether the case would not have recovered without operation, and, thus far, we have very little precedent in regard to operations on the base of the skull. It does not seem to me that the pupil is as much dilated as when I began the operation, and this I take to be an indication that the pressure has been relieved.

CLINICAL MEMORANDA.

A TRUANT URETER.

By W. H. MAXSON, M.D.,
ST. HELENA, CAL.

I REPORT the following case as one of unusual interest, from the fact that such abnormalities are rarely met with. Three cases so far have been reported, two of which only came to operation. The first of the kind was published in the *New York Medical Journal*, December number, 1878, by Dr. W. H. Baker, and operated upon with success. A second case was reported in the *British Medical Journal* of December 6, 1884, by Dr. Thomas More Madden, of Dublin, Ireland. This case, however, did not come to operation. The third case was reported

in *American Gynecological Transactions*, Vol. 15, 1890, by Dr. F. H. Davenport, of Boston. This case came to operation on February 11, 1890, and the first operation not being wholly satisfactory, the case was again operated upon March 11, 1890, with success. Three cases, including my own, have now been operated upon successfully, and it is to be hoped that others who may be suffering in the same manner may be induced to submit to the same treatment for relief.

Miss H., age 22, healthy, robust, never subject to any other than children's diseases; family history above suspicion. She had suffered from what she supposed was simply incontinence of urine, as she says, as long as she could remember, being obliged to wear a napkin continually night and day, and at the same time voiding at regular intervals urine, as she supposed naturally. Her condition gave her no end of trouble and inconvenience, and most of the time she felt that she was ostracized from society. She had consulted physicians, but all to no purpose, and had been obliged to bear this great misfortune—for such it was—all her life. Having heard of some cases that were benefited, she took new courage and applied to me for treatment January, 1893, in the hope that she might be relieved of the incontinence of urine. After an examination, it was found that she presented, as far as we could see, natural organs, and no indications of disease. Her urine was examined and found to be negative; and as there were no outside indications of the cause being other than simple incontinence, she was placed under treatment for the space of a month. The capacity of the bladder was measured and found normal; urine examined with negative results. Electricity, both faradic and galvanic, was used in appropriate strength, with a view to stimulating the sphincters to their proper tension. At the end of a month no perceptible change could be noticed, and the case looked discouraging.

Thinking that it was useless to continue treatment further in that line, we recommended a forcible dilatation of the uterus to relieve dysmenorrhea, with which she suffered expecting that to end our connection with the case. While under an anesthetic, however, we took occasion to make a more critical examination of the urethra, and then learned the cause of the incontinence. By the use of probes we could clearly demonstrate that the left ureter, instead of opening into the bladder, opened on the outside of the body, in common, however, with the external meatus of the urethra, but outside the external sphincter, as demonstrated by passing one probe into the bladder and another into the ureter; and by dilating the external meatus slightly we could distinguish the bridge separating the urethra and ureter, about one-fourth of an inch from the external surface. With the probe the left ureter could be traced up the vagina its entire length, and lying just beneath the mucous membrane.

After a careful consideration of the anatomical relations present, I recommended a radical operation for the relief of the patient, consisting of dissecting the ureter up to the walls of the vagina, and at a convenient place turning it into the bladder. I had never seen or heard of a case of the kind, and consequently asked counsel, taking

the case before four of the most distinguished surgeons of San Francisco—Drs. Lane, Plummer, Gibbons, and Cushing—who corroborated fully my diagnosis.

Thus encouraged, on the 26th of February, 1893, the young lady, after a careful preparation, was put under an anesthetic. Several surgeons assisting, I made the incision through the vaginal wall from the external meatus of the urethra up the vaginal wall about four inches over the line of the true ureter, dissecting off the mucous membrane from the ureter that distance. I then passed a slender, long pair of dressing forceps, slightly curved, into the ureter, spreading the blades sufficiently to keep the ureter on the stretch, in order to prevent incising it while dissecting it out, which I succeeded in doing without any injury whatever to it. At the distance of about three and a half inches I reached a point where the base of the bladder came into close contact with the ureter. I then passed a curved sound through the urethra into the bladder, adjusting it in the base of the bladder at the point where the contact with the urethra was to be made, at which place I made a sufficiently large opening through the bladder. Finding that the ureter, dissected up, was much longer than necessary, I cut off about an inch and a half. I then put in a long suture in the end of the ureter, and looping the end of it over the sound, drew the sound back through the bladder and urethra, drawing with it the suture which was to pull the ureter through the opening in the bladder to the extent of an inch at least. I then stitched the ureter into the walls of the bladder, using catgut sutures, and the vaginal wall was closed over the former site of the ureter. I then passed into the bladder a gum elastic catheter and attached the ligature on the end of the ureter to the catheter, in order that the suture might hold the catheter *in situ* and that the catheter might make a continual mild strain on the ureter. The case was then put to bed, and made an uneventful recovery, with the exception of a stitch abscess, which discharged per vaginam, and a slight cystitis, caused by the irritation of the catheter. The catheter drained the bladder continually for two weeks. At the end of the second week the suture came away. The third week the urine was drawn every three hours, at the end of which time the patient was given free use of the bladder, with the instruction to void the urine quite often, as indeed she was inclined to do from a slight irritation. She was kept quiet for two weeks longer, after which time she has had normal use of the bladder, the urine passing normally.

It is now over two years since the operation. I have heard from the case occasionally, and have had the pleasure of making an examination twice. From all appearances I could not hesitate to pronounce the operation a success. It is needless to say that the patient was overjoyed as time proved her free from the distressing symptoms of incontinence.

THE sixty-third annual session of the Medical Society of the State of Tennessee will be held at Chattanooga on April 14th, 15th, and 16th next. An interesting program, containing 38 papers, has been prepared.

TWO CASES OF ABSCESS IN THE MASTOID REGION, ASSOCIATED WITH DIABETES MELLITUS.

By R. A. URQUHART, M.D.,
OF BALTIMORE, MD.

WHILE the occurrence of boils and carbuncles on various parts of the body surface has long been recognized as a feature of diabetes mellitus, recent agitation of the question tends to show the mastoid process especially prone to be a seat of inflammatory change in this disease.

Just why this region proves to be a point of least resistance is difficult to explain. The cells and cavities of the middle ear being anatomically almost one and the same leaves no room for surprise at involvement of the cells after the establishment of otitis media—but why it should arise in the diabetic diathesis is by no means so evident.

The cases reported below are from a limited number treated in St. Agnes Hospital, Baltimore:

CASE I.—Mrs. D., aged 57 years; admitted June 6, 1895, in fairly good condition; gives history of probable diabetes for the past six or seven years; passing about eighty ounces of urine daily, which showed 3 per cent. sugar; has inordinate appetite and thirst, and numbness and tingling of peripheral neuritis. Some days after admission several boils developed on various parts of the body surface and face, followed by complaints of pain in the region of the right ear. Careful examination showed only some slight redness of the drumhead, with a slightly reddened and swollen condition of the external auditory canal, most marked along the posterior wall.

The condition rapidly grew worse, and examination on the following day showed an auditory canal quite swollen and red, with marked congestion and bulging of the membrane, with some little exudation of pus from a previously existing small perforation in the lower posterior portion, with an exquisite tenderness to pressure over the anterior region of the process where there had developed no marked signs of inflammation. There were severe neuralgic pains over the right side of the face, with tinnitus and giddiness, the temperature at no time registering more than 101°.

The treatment consisted of constant hot-water application, with frequent irrigations with saturated solution of boric acid, drainage being effected by way of the middle chamber through the perforated membrane. The tenderness slowly left the region as the suppurative exudation decreased, and was followed by no serious involvement of the organ.

CASE II.—Patient, Miss N., aged 65 years; admitted September 15th; poorly nourished; family history negative; urine passed in moderately large quantities, examination showing a small per cent. of sugar with phosphates largely increased, suggestive of the so-called phosphatic diabetes. The constant presence of sugar on repeated examination, however, showed a disordered nutrition, unquestionably of diabetic origin.

In this case, at no time has there been a tendency to furunculosis other than in two instances, in each of which the ear has been the region involved. In the first, the boil developed in the external auditory canal posteriorly; was of small moment and short duration, yielding readily to

early evacuation with subsequent irrigations, the membrane being in no manner involved, nor did the mastoid region appear affected.

In the second instance the mastoid region has been alone involved—the inflammatory process developing slowly but steadily—responding with slight pain only, at first, to deep pressure, with increasing swelling and redness, the upper anterior region being probably most noticeably tender. The tympanic membrane, at first unchanged, never showed more than mild congestion, while the external auditory canal in its posterior wall alone was affected—where there was no well marked inflammatory condition. Hearing at all times was acute; the temperature reached 101°. There were acute neuralgic pains radiating over the side of the face and head, but no other symptoms referable to other parts.

Deep incision over the affected area showed a diseased periosteum with unhealthy appearance of the bone below but no carious particles were noted; however, the length of time that a free discharge of pus took place suggests more than a periostitis. If this is a case of inflammation of the cells, apparently we have a primary involvement of the mastoid region in no manner traceable to a disordered condition of the tympanic cavity, for at no time has its involvement been of serious moment.

In neither case was the otitis media, if indeed this condition could have been present in the latter, traceable to inflammation of neighboring structures, pharynx, or Eustachian canal. That there does seem especial tendency to inflammatory changes in the mastoid region in the dyscrasia under discussion, there is unquestionable evidence, but as to the existing relationship we are as much in the dark as we are ignorant of the true nature of the diabetic diathesis.

NEW APPARATUS.

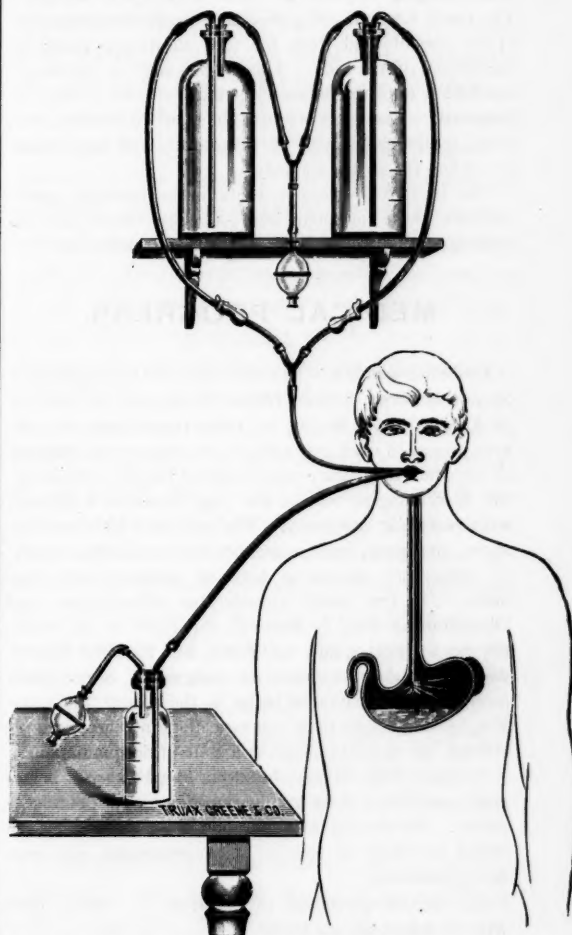
A PNEUMATIC FORCE IRRIGATOR FOR ALTERNATING HOT AND COLD WATER, AS USED WITH TURCK'S STOMACH NEEDLE-DOUCHE.

By FENTON B. TURCK, M.D.,
OF CHICAGO.

THIS consists of two large bottles, A and B, with closely fitted corks, pierced by two glass tubes, one of which reaches to the bottom inside of the bottle, like a siphon. To each of these glass tubes is attached a rubber tube of suitable length. Each rubber tube is supplied with a shut-off clasp, which may be easily opened and closed. A Y-shaped glass tube connects the two extremities of the rubber tubes. To the remaining, or stem, end of the Y-shaped glass tube, which is in connection with the long tube inside the bottle, is attached a rubber tube of any desired length. To this tube may be attached the double stomach-tube (needle-douche) or any point or tip used with the irrigator.

To the remaining, or stem, end of the second Y-shaped glass tube a rubber bulb (or any apparatus for the compression of air) is attached by means of a short rubber tube.

In order to fill the bottles, connect the long tube with the hot or cold water from the hydrant; in absence of hydrant use the water from an elevated vessel. After the bottles have been half filled, they are ready for use. In order to increase the force of the stream, all that is necessary is to pump in air, compressing it upon the body of water. The stimulation of the rapidly alternating hot and cold water, together with the impact of the small needle-



PNEUMATIC FORCE IRRIGATION.

like streams of very greatly increased force, acts as an intense vaso-motor and cellular stimulant. The cleansing power is also enhanced by the increased force of the stream; it is used also for a general irrigator. Besides cold and hot water, different solutions can be kept in bottles on hand ready for immediate use.

NO. 1 THE PLAZA.

A RAPID METHOD OF FILTERING.

By SAMUEL H. FRIEND, M.D.,
MILWAUKEE, WIS.

SINK a tightly fitting pledget of absorbent cotton about one inch (2.5 ctm.) from mouth of test tube; fill the space

above with urine or fluid to be filtered. Place the opposite end of tube in running hot water, or water ranging between 120° and 150° F. (50° to 60° C.), or heat tube with a gas or alcohol flame. The result will be that the heated air in the tube will rise—following the law of the expansion of gases—which is manifested by the appearance of bubbles on top of the fluid layer. As soon as this is observed submerge the bottom or heated portion of the tube into water ranging between 40° and 70° F. (5° to 20° C.). The result is manifested immediately by the disappearance of the layer of fluid from the top, and its appearance in the bottom of the tube. This process may be continued indefinitely until the necessary quantity of urine or fluid is collected. The latter action is the result of suction, produced by the elasticity of the atmosphere and its pressure in refilling the partial vacuum.

This method is especially useful in the chemical examination of urine containing pus, and could also be used in making a rough estimate of solids held in suspension.

MEDICAL PROGRESS.

Epidemic Stomatitis.—At a meeting of the Laryngological Society of Berlin, SIEGEL (*Revue de Laryng., d'Otol., et de Rhinol.*, 1895, No. 24, p. 1184) stated that this disease presented itself generally in the form of an affection of the whole alimentary canal from the mouth to the anus; the descending portion of the large intestine is affected with particular frequency. The liver and kidneys often show alterations, and sometimes an exanthema occurs, in appearance somewhat between measles and scarlatina. In the mouth considerable inflammation and edematous swelling is observed, especially in the uvula, the faucial pillars, and the gums, and the latter present also scorbutiform lesions; the tongue is often much swollen; the formation of bullæ in the mouth, the pharynx, and the epiglottis is not rare, the gums are often retracted, the lingual mucosa in a state of desquamation.

In about thirty sections the author found a specific bacterium, and once a short bacillus showing a clear point in its center. He showed a preparation from the kidneys, in which a colony of specific micro-organisms was seen in a glomerulus.

E. MEYER presented two patients in whose feces SIEGEL found specific bacilli.

Phlegmonous Lingual Amygdalitis (*lingual angina*, of DAVID CAIGIE; *basiglossitis*, of A. BROCA).—E. ESCAT, (*Revue de Laryng., d'Otol., et de Rhinol.*, 1896, No. 5, p. 129) reports the case of a shoemaker, 33 years old, who, being nearly cured of an angina, which had been cared for at home for eight days, experienced on the ninth day a relapse. The febrile symptoms—insomnia, cephalalgia, burning thirst—soon reappeared in a far greater degree than in the first attack. The patient complained of difficulty in deglutition, even of liquids, left otalgia, and the sensation of a foreign body in the throat. The mucosa of the buccal pharynx was the seat of a moderate diffuse catarrh; the faucial tonsils were slightly

swollen, but otherwise negative, some edema of the subhyoidian region, and the immobility of the tongue. By means of a special tongue-depressor and the laryngoscopic mirror, a very red, shining tumefaction was discovered at the base of the tongue, occupying the whole left half of the lingual tonsil, passing beyond the border of the epiglottis. It was considered advisable to make an incision, but before this could be done rupture took place during a violent spasm of the pharynx, and the throat was inundated by a flow of pus. The patient experienced a great relief, the deglutition of saliva became again easy, the pharyngeal pains less pronounced, and the voice clearer, and after three days the patient was completely cured.

THERAPEUTIC NOTES.

A Case of Intoxication with Bromoform.—VAN BÖMMEL (*Deutsche medicin. Wochenschrift*, 1896, No. 3, p. 46) has reported the case of a child, ten months old, that took by inadvertence about a dram of bromoform. In a short time slight cyanosis had developed, the pupils were profoundly contracted and phenomena of respiratory and cardiac paralysis had made their appearance. The tongue presented a brownish discoloration, and the breath the characteristic odor. Artificial respiration was at once instituted, and the cutaneous surface was stimulated through hot bathing and cold douches to the head, the tongue meanwhile being pulled forward rhythmically. These measures were maintained for two hours, when an injection of ether was made. This was followed by trismus and spasms of the extremities. The injection was, however, repeated twice at intervals of half an hour, and gradually improvement began to set in. In the course of four hours respiration had become quieter and the cyanosis of the lips had given place to a red blush. In a day or two more, recovery was quite complete.

For Pulmonary Tuberculosis.—

B Potassii iodidi . . .	gr. xiv
Iodi pur.	gr. xv
Sodii chloridi	ʒ jss.
Aquæ destillat. . . .	Oij.—M.

S. Take three or four tablespoonfuls in a glass of milk from three to six times daily.

—RENZI, *Jour. de Méd. de Bordeaux*, No. 7.

For Tinea Favosa.—

B Acidi carbolici	
Balsami Peruvian. . . .	aa f ʒ ijss.
Petrolei	
Glycerini	aa f ʒ iij.—M.

S. Apply topically.

The scalp is washed with tincture of green soap, and the affected area is shaved, and generally painted daily with the foregoing mixture. If the hair grows rapidly the shaving should be repeated every two or three days.

—KHEÉNITCHEK, *Semaine médicale*, 1896, No. 8.

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SATURDAY, MARCH 21, 1896.

EXCLUSION OF FOREIGNERS FROM THE PARIS MEDICAL SCHOOL.

By a recent decision of the faculty, foreign students are henceforth to be excluded from the Paris Medical School, and for this drastic measure the sole cause assigned is, "overcrowding." A considerable section of the French press has been loud in its outcry against this action of the faculty, and in deploring the sudden reversal of the broad and liberal policy which for centuries has characterized the management of the great educational institutions of the country. In France, however, it must be remembered that higher education, like the manufacture of matches, is a monopoly of the state, and that at the present juncture the action of the University may be in furtherance of the ultra-protectionist policy of the government. Another possible explanation is that the step has been taken with a view to filling once more the grass-grown courts of the provincial medical schools, which are still open to the foreigner, although unable (with two or three exceptions) to attract the native student. The spectacle presented by these almost deserted schools is deplorable. Their decay is chiefly at-

tributable to the scheme of centralization, pursued in France by successive *régimes* for half a century, and which has made of Paris the only goal toward which ambitions tend. From time to time in these smaller schools a chair is suppressed for want of students (attendance at lectures being optional in French medical schools), and it is even alleged that in order to retain them the requirements of scholarship, nominally the same as in Paris, are indulgently modified.

That the school at the capital is overcrowded there can be no doubt. There are at present in Paris over four thousand students registered as attending the medical school, while the laboratory accommodation is inadequate for half that number. To relieve this congestion, an increase in the accommodation and teaching-staff is dismissed from consideration on the score of expense; adding to the requirements for matriculation, it is said, can be resorted to no more; while the suggestion to restrict provincial students to provincial schools for the first two or three years of the course has so far met with little favor. That the exclusion of foreigners will still leave the Paris school overcrowded is admitted by all, an admission which lends some weight to the theory that the blow is aimed at the practitioner from abroad rather than at the student. Many foreign graduates of the Paris school remain permanently there to practice, and in these days of keen competition the native practitioner cannot but regard their presence as an intrusion. To-day the cry is not "the more the merrier," but "*la France aux Français*."

Emboldened by the recent action of the authorities, the Parisian students have already entered the breach, and demand that the French medical degree should in future confer upon the foreigners no privilege to exercise his profession on French soil. To this it may come, but probably more liberal counsel will prevail.

In conclusion a word may not be amiss as to the principal reasons for the present overcrowding of the Paris school. They are twofold:

Firstly, it is due to the remission in the term of military service accorded to those engaged in the study or practice of the liberal professions.

Secondly, to the tendency of the age, which leads the young man to abandon the country and

smaller towns for the great city, and in this special instance to seek to profit by the advantages of the largest medical school in the world, in the fond belief that his assimilative powers must needs be stimulated in proportion to the amount of pabulum set before him.

**THE PRESENCE IN THE NORMAL THYROID
GLAND OF A SUBSTANCE CONTAINING
A RELATIVELY LARGE QUAN-
TITY OF IODINE.**

THE demonstration, by the distinguished Freiburg chemist Baumann,¹ of the presence of an organic iodine compound in the normal thyroid gland must be regarded as one of the most important of the recent contributions in the field of chemistry. But quite apart from the interest which belongs to it from a purely chemical standpoint, a much wider significance attaches to the discovery from its therapeutic aspects; for we are now at least promised a solid basis from which may be deduced an explanation of many well-known clinical facts which have been developed not only from the treatment of disease of the thyroid gland with thyroid extract, but from organotherapy in general.

Almost simultaneously with the earlier reports dealing with the benefits to be derived in certain diseases from the administration of the thyroid extract there developed in chemical circles an unprecedented activity in investigating the constituents of the thyroid gland; and the unabated interest which has since prevailed is evidenced by the large number of articles dealing with the subject that have appeared up to the present time. None of these, however, offers a satisfactory explanation of the beneficial influence which has undoubtedly followed this form of medication. The incomplete publications of Notkin, in which it was asserted that two substances—a protein and a ferment—were responsible for the virtues of the gland, have been looked upon, curiously enough, with favor by the French, although physiological chemists in Germany and America have not been inclined to consider them seriously. The crystalline nitrogenous derivative described by S. Fraenkel, although of chemical interest, is

insufficient to supply a solution of the problem in question.

The idea that the element iodine might stand in some very definite relation to the metabolism of the thyroid gland is by no means new. Even as early as 1850 Chatin, who believed that iodine was present in the air, in water, in all plants, in fermented drinks, in milk, in eggs, and in the soil, suggested that its presence was essential to the welfare of the organism, and that cretinism and goitre occurred only in those regions in which iodine was entirely absent from the drinking-water. Others who studied the constitution of the air and of water denied, however, the presence of iodine in them, and Chatin's theory was at first discredited and afterward forgotten.

Kocher, the distinguished surgeon at Zurich, only a short time ago, relying upon the fact that the efficacy of iodine in the treatment of diseases of the thyroid gland compared favorably with that of the thyroid extract, suggested that the normal thyroid gland be examined thoroughly, in order to see if iodine existed in it. Tschirsch incinerated the gland, but failed to find iodine, and chemists, relying upon his results, naturally took it for granted that this element was absent. This negative result was perhaps not surprising, considering the small amount of iodine present in the crude gland, though Baumann has since detected it in the ash from one gram of the dried gland.

Roos, in a report of an investigation preceding Baumann's publication, in which he showed that the thyroid gland bore a distinct relation to the phosphorus metabolism of the body, mentioned some experiments which may really be looked upon as the forerunners of Baumann's brilliant discovery. It had for some time been known that digestion, moderate heat, and certain antiseptics did not destroy the active substances of the thyroid gland, and Roos proved, in addition, that prolonged boiling in 5 to 10 per cent. solutions of the mineral acids apparently did them no injury. It was his opinion that a portion of the active substance, though not all, was soluble in water.

Baumann, after boiling the glands in 10 per cent. sulphuric acid, and separating the fine flocculent precipitate after cooling, purified it by further

¹*Ztsch. f. physiol. Chemie*, Bd. XXI, Heft 4.

treatment with alcohol and 1 per cent. caustic soda, and repeated precipitation with dilute sulphuric acid. He obtained a brown, amorphous substance, in weight from .2 to .5 per cent. of that of the fresh glands, and which, arguing from the results of Roos' experiments made upon men and dogs, he believed to represent approximately all the active principle of the gland. The substance is almost insoluble in water, very slightly soluble in alcohol, but easily dissolved in dilute alkalies, from which it is precipitated by the addition of acid. It yields no reactions for albumin, but contains always small amounts of phosphoric acid in organic combination. The most interesting fact concerning it is that it contains iodine, and that too in a relatively high percentage. Baumann reduced the substance to ash with caustic soda and nitrate of potash, dissolved the residue in water, added nitric acid, and shook with chloroform. A distinct violet color resulted, showing the presence of iodine. The work was done with pure chemicals, and the only possible source of the iodine was the substance obtained from the thyroid gland. To this substance Baumann has therefore given the name "thyro-jodin." In his early experiments he thought that the preparation contained only about 3 per cent. of iodine, but after further purification he obtained a substance yielding as much as 9.3 per cent. of iodine; and he believes that when obtained absolutely pure it will show even a larger percentage of the element.

Baumann has been particularly fortunate in having the assistance of the large chemical factory of Bayer & Co., at Elberfeld, who prepared large quantities of the thyro-jodin for his further experiments, more than 1000 sheep's thyroids being utilized for this purpose. At Freiburg, too, there is always available a large number of patients, drawn from the Black Forest and the Vosges, suffering from diseases of the thyroid gland, so that, with the active co-operation of Roos, Baumann was able to test the effect of the new substance clinically in human beings, a fact of much importance, since we now know that the thyroid extract is much more efficacious for human beings than for dogs and other experimental animals.

Thyro-jodin is present in the thyroid of the

pig, though in smaller quantities than in that of the sheep. It is probably present in the human thyroid; so far, Baumann has had the opportunity of examining only one human gland, a hardened pathological specimen, and this contained a small amount of iodine. If, however, as Baumann believes, the thyro-jodin represents the whole of the active principle in the gland, it is difficult to see why it is that glycerine-and-water extracts of the thyroid gland appear to be therapeutically perfectly efficacious, inasmuch as this substance is almost entirely insoluble in water. This apparent contradiction Baumann promises to explain in a subsequent publication.

That this discovery will throw new light upon the functions of the thyroid gland and upon the nature of the benefits of thyroidtherapy there can be but little doubt. Baumann suggests that the surprisingly rapid amelioration of symptoms in goitre which follows the exhibition of the thyroid gland itself, as compared with the results from the iodine treatment, may be due to the fact that whereas by the administration of simple iodine the manufacture of a certain substance is made possible and facilitated, by the employment of the thyroid gland or its extract, this same substance is brought into the organism ready-made and in a condition suitable for immediate metabolic use.

One of the most interesting features of the investigation is the demonstration of the marked elective affinity exhibited by a definite organ of the body for the element iodine. It is very remarkable, indeed, that a substance existing, as it must, in extremely small quantities in the blood and tissue fluids of the body can be accumulated in one organ and rendered thereby capable of elaborating in relatively large amounts a functionally active compound such as thyro-jodin represents. It is quite possible, should Baumann's results be confirmed, that we have here to deal with a principle of wider application as regards the functions of organs, and the recognition of which would go far to throw light upon the whole subject of organotherapy.

The interesting physiological law formulated by Treviranus has already had clinical confirmation, at least for a number of organs. As a result of such work as that of Baumann, there

would seem to be some prospect of its establishment upon a definite chemical basis.

GENITO-URINARY AND VENEREAL DISEASES AND SYPHILOLOGY.

A CRITICAL RÉSUMÉ OF RECENT ADVANCE : SYPHILIS ACQUIRED IN ADVANCED LIFE.

THOUGH in America and France it is generally admitted that syphilis contracted at an advanced age, as a rule, runs a rather severe course, and is frequently the cause of cerebral and cerebro-spinal lesions of varying gravity, it must be remembered that a number of German observers have reached a contrary conclusion. Thus, so sagacious an observer as the late Prof. Sigmund failed to find syphilis when developed in aged persons any more severe in its course and manifestations, or to be more frequently complicated with brain symptoms, than the same disease in the earlier periods of life. Sigmund's conclusions were based on the study of 118 cases of men and women in hospital and private practice, observed during a period of thirty years. Coming from such an eminent authority, this statement seems very striking; but when it is learned that the average advanced age in women was only 45 years and in men 55 years, our surprise is much diminished. In very many patients at this age the health is strong and vigorous, and senile decay has not yet set in. In striking contrast to Sigmund's views are those of Fournier, Quinquaud and Ullmann, Renault, Dulac and Regoby. In general it may be said that these observers held that the advanced age should be considered as periods between 50 and 70 years of life. In these ages they saw severe forms of syphilis, and noted the frequent occurrence of cerebro-spinal symptoms. Certainly this greater latitude for observation will yield far more trustworthy clinical results than a study of syphilis in middle-aged persons will. When it is remembered that syphilis expends its morbid action largely and extensively upon the blood-vessels, the fact strikes one that in old persons the severity of the attack is very much influenced by the condition of the vascular system. Upon the integrity of the patient's vessels, therefore, hinges in a large degree the greater or less severity of the syphilis. In old persons arterio-sclerosis is common, and may in-

volve more or less of the circulatory apparatus. Instances of this involvement combined with syphilis are not at all uncommon. Besides vessel-changes, visceral lesions, general debility, an unstable condition of the tissues, and the systemic morbid effects produced by vicious habits and indulgences are undoubtedly factors of gravity in syphilis of advanced life. These reflections bring strikingly to the mind the futility of generalizations in the study of the question now under consideration. The truth is that the subject of syphilis in the aged should be yet gone over again by individualizing in each case, and on a large scale, before systematic conclusions can be drawn. The force of this contention has been well brought out in a discussion before the Berlin Dermatological Society upon the relative frequency of nervous affections in old persons attacked by recent syphilis (*Berlin. klin. Wochenschr.*, No. 25, p. 551, 1895). In eleven cases between the ages of 61 and 64 years under his care, Born observed neither benignity nor malignity in the course of the disease, and in none was the nervous system attacked. In 600 cases of malignant syphilis Lewin only observed about 10 in which cerebral symptoms were present. Lewin's statistics are almost rendered nugatory for the reason that he included cases which had only passed their fortieth year. In this discussion Renvers hit the keynote of the question when he remarked that the evolution and course of the disease were especially influenced by the condition of the vascular system. A pre-existent encephalic arterio-sclerosis, according to the anatomo-pathological studies of this observer, was largely the determining cause of brain syphilis. Cases also are certainly seen in which an hereditary unstable condition of the nervous system has seemed to be the underlying cause of its involvement by syphilis.

Blaschko, in the same discussion, stated that he had been impressed with the mildness of syphilis in old persons, and had come to think that it was due to the great vitality enjoyed by voluptuaries who, when quite old, were capable of putting themselves in the way of contracting syphilis. Mendel, whose paper opened the foregoing discussion, thought that arterio-sclerosis was the underlying cause of the malignity of syphilis in the aged. A review of my own clinical

experience has convinced me that in many elderly persons of vigorous physique and good habits syphilis runs a comparatively mild course; in less vigorous persons it is more severe; but that in poorly nourished, weakly, and under-weight individuals, in nervous, excitable, neuropathic, and over-studious (brain-workers from all causes), it is often severe and even disastrous in its effects. Further, I have observed the malignant combination of arterio-sclerosis and syphilis and the grave effects of antecedent visceral diseases. Much further light can be thrown on this important and yet unsettled subject by the publication of well-observed cases.

ROBERT W. TAYLOR, M.D.

ECHOES AND NEWS.

IN compliance with a request from Secretary Chancellor, of the Association of Military Surgeons of the United States, Gov. Turney, of Tennessee, has appointed Brig.-Gen. T. C. Murrell, of Jackson, Surgeon-General; Col. E. Mills Willet, of Memphis, surgeon First Brigade, and Maj. J. R. Buist, of Nashville, surgeon First Regiment, as delegates to the sixth annual meeting of the association, which convenes in Philadelphia on May 12.

ARRANGEMENTS are being made by the Section of Neurology and Medical Jurisprudence of the American Medical Association, at their Atlanta meeting, in May, to have the medico-legal possibilities and bearings of the Röntgen rays upon medicine and surgery presented in an elaborately illustrated lecture. Several newly discovered facts will be stated, and unusual attention will be devoted to this topic.

THE *Lancet* announces that the late Lady Gregory, alias Mrs. Sterling, the celebrated English actress, has divided by will a large sum of money among several of the great London hospitals. In commenting on this it says that the theatrical profession have of late years been especially kind in the interest which they have taken in medical charities, and have shown it in a practical manner by often giving their services and lending their theatres for aid of hospital funds. It is needless to say that the theatrical profession of America is equally generous and beneficent.

SOME very interesting facts were recently brought out in a report to the Reichstag concerning the decline of disease in the German Army. From the report it appears that since 1868, when the number of cases of sickness was 1496 per 1000, there has been a steady reduction to 867 per 1000 in 1894, or 42 per cent., and the death-rate has gone down from 6.9 per 1000 to 2.4 per 1000, a reduction of 65 per cent., which means a saving of 2200 men each year. This remarkable improvement is due to modern improved hygiene and to the strict enforcement of vaccination during the past thirty years. Smallpox is now

exceedingly rare, and has caused only two deaths since 1873. History demonstrates that the most devastating army epidemic is smallpox. In the French Army, during the Franco-Prussian war, there were 23,400 deaths from this disease, while in the German Army there were only 300 deaths. The campaign of 1870-71 reversed the time-honored rule that disease kills more than the enemy; 26,000 German soldiers fell in battle and 14,000 by disease.

THE statement is made that Kaiser William, of Germany, has had his left arm skiagraphed by the new process. This arm, as every one knows, is quite useless, and the skiagraph revealed the nature of the malformation. The result has been submitted to eminent surgeons, and it is stated that they believe a simple operation may give the Emperor partial, if not complete, use of his left hand and arm.

IT is reported in the daily press that Dr. Chantemesse, of Paris, has discovered an anti-typhoid serum, with which he has experimented on three patients. After the first injection they passed rapidly through the ordinary stages of the disease and became convalescent.

IN a recent conference between the New York State and New York City boards of health, a resolution was adopted asking that \$300,000 be appropriated as a fund to be used in a systematic combat against tuberculosis.

AN appropriation recently made for a new public bath in New York city is certainly a charitable expenditure of the public funds along lines that must commend themselves to all. No other system of sanitation, either physical or moral, can be compared with the bath.

DR. HENRY P. WALCOTT, in a lecture delivered last week in Huntington Hall, Boston, Mass., upon "State Medicine in the Nineteenth Century," made use of the following statistics: Out of every 100 infants there die in the first year in Bavaria 30.6 per cent.; in Holland, 20.3; in France, 16.6; in Massachusetts, 16.3; in London, 16; and in Boston, 26.

BEFORE the Judiciary Committee of the Massachusetts Legislature, during its investigation relating to vivisection last week, Dr. W. T. Porter gave an interesting and detailed statement regarding the work of the Physiological Laboratory at Harvard from the first of last October to the present time. The lectures and demonstrations had been 128 in number, and the experiments on living animals 28, including 9 on dogs, 8 on rabbits, 5 on pigeons, and 6 on frogs. The dogs, rabbits, and pigeons were anesthetized throughout the operation. The dogs and rabbits were killed before consciousness was regained. In none of the experiments did the animals suffer.

THE *British Med. Journal*, Feb. 29, '96, announces the hope that the British government will shortly abolish all that remains of quarantine law in that country. It bases this expectation on the statement that plague and yellow fever are the only two diseases to which quarantine is now applicable in England; that the former has

been unknown in recent times in western Europe, that the danger is therefore very remote, and even should it appear it could be dealt with successfully by local government boards; while it had been demonstrated that yellow fever could be suppressed by the same instrumentality. Cholera, the one epidemic of the first gravity that has invaded the country in modern times, had been combatted successfully without invoking quarantine enforcement.

THE Dead-letter Office, at Washington, is said to still have in its possession a human skull, sent to the late Prof. S. D. Gross, of Philadelphia, eight years ago, and refused by him because there was \$3.19 due in postage, the package having been sealed against inspection.

A SINGULAR society has been formed, taking the name of The Cornell Brain Association, which has for its object the post-mortem study of the effects on the human brain of education and good morals. At least we learn from the daily press that Dr. Wilder, of this association, has made another appeal to educated and moral persons to bequeath their brains to the institution for scientific study. In response to this letter the society has already received eight brains, and has the promise of twenty-five others, which are as yet being used by their owners. These latter include the brains of Thomas K. Beecher, of Elmira, and Mrs. McGee, daughter of the astronomer Simon Newcomb. Apparently no brains of immoral or uneducated persons can be used by the association, though it would seem that a few of the latter class might prove of advantage for purposes of comparative study.—*Boston Med. and Surg. Journal*.

DR. EDWIN A. BOWERMAN passed a recent civil-service examination at Albany, in which he attained the highest average, 95.3. He has been notified of his selection to fill the first vacancy as junior assistant physician in the New York State hospitals for the insane. Dr. Bowerman graduated with first honors from the College of Physicians and Surgeons of Baltimore in 1895.

INFECTIOUS bacteria are reported to have been discovered in Russian grain in great abundance, and with such tenacity of life that they withstand the heat of an oven. Germany is disposed to consider this sufficient ground for prohibiting the importation of Russian cereals, but a more careful investigation is now in progress.

A BILL has been presented to the Maryland Legislature providing for a board of dental examiners, from which all dentists entering the practice of their profession in that State shall be required to obtain a license.

THE College of Physicians and Surgeons, of Chicago, has purchased the post-graduate school and hospital adjoining the college, at Harrison and Honore streets, for \$50,000. This will afford its students opportunities for practical ward work in hospitals not before permitted.

AT various places throughout the south and west smallpox is said to be present, but New Orleans is suffering from a real epidemic. Cases to the number of about twenty are discovered daily, and the pest-house was reported to contain already over 150 patients.

SOCIETY PROCEEDINGS.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, March 3, 1896.

EDWARD D. FISHER, M.D., PRESIDENT.

A STUDY OF SPORADIC CRETINISM.

DR. WILLIAM B. NOYES read a paper with this title. He said that on September 1, 1895, he saw a child, 2 years old, who was not more advanced than a child of 6 months. The abdomen was protuberant, the nose short and retroussé, the tongue swollen and protruding, and the saliva dribbling from the mouth. There were two swellings on the neck, just in front of the sterno-mastoid muscles. The child appeared to be idiotic. Its length was 24 inches. The epiphyses of the long bones were somewhat swollen. There was no rachitic rosary or any other rachitic symptom. The mother stated that this was her first child, and that it had been born after a normal labor. Both parents were young and healthy. The child reached a weight of fourteen pounds after two months, and then did not gain for more than a year. The chief complaint had been constipation and weakness. There was no family history bearing on the condition. On September 15th the child was ordered a daily dose of one-fourth of a Burroughs & Welcome five-grain tablet of thyroid extract. By mistake a daily dose of five grains was given at first, with the result that the circumference of the neck was reduced two inches, and the child had begun to perspire. The temperature rose to 102°, and there were prostration and sleeplessness. At the end of a week the entire body had desquamated, leaving a clear, white, waxy skin. On November 24th, after having taken one grain daily, the amount of improvement was wonderful. By February the child had grown eight inches, and its weight had increased three or four pounds.

In considering the effect of heredity, the speaker said it might be manifested in three ways, viz.: (1) In a congenital local defect; (2) in a defect of growth; and (3) in a defect in the general vitality. One or more of these defects might exist in the same individual. Many epileptics, inebriates, and insane persons showed this physical and psychical taint. There was a very significant hereditary element in cretinism. Some European observers had believed the cretins to be the descendants of a degenerate race, but this could hardly be credited. Recent epidemics of cretinism had shown that heredity was the chief cause of sporadic cretinism. Only those whose parents had goitre seemed to develop cretinism. Those with goitres were not cretins, but cretinism appeared in the next generation. Endemic cretinism was not so much hereditary as a hereditary local deficiency. All over Europe, and particularly in the mountains, statistics showed that deaf-mutism was much more prevalent than in the lower-lying regions. This was probably due to the evils of consanguinity, poverty, and unsanitary surroundings. There were certain cretins who did not present all the typical indications of cretinism. In various parts of the world were to be seen cases presenting the general features common to endemic cretinism, which were known as sporadic cretin-

ism. In early childhood these cases had been frequently confused with the more common forms of idiocy. When the thyroid gland is removed by operation, or when it atrophies from disease, certain changes are observed. First, there is a general disturbance in the nutrition and the development of myxedema—a general increase in the bulk of the body, a deposit of infiltration of mucin. The latest examinations by Halburton showed a practically normal percentage of mucin in the skin, and a very slight increase in the subcutaneous tissues. There was an excess of "basement substance," or young connective tissue holding mucin. In the later stages of myxedema the subcutaneous connective tissues became permeated by white fibres and fat-cells—the atrophic stage. The blood is altered, and there is some evidence of toxicity in the blood. Acute or operative cases in animals showed certain nervous symptoms, such as fibrillary tremors or convulsions. In the young infant the myxedematous process tended to produce: (1) a condition of idiocy; (2) edema and swelling of the subcutaneous tissues would be more marked than in the adult, because the tissues were softer; and (3) a general change occurred in the bony framework of the body—e.g., a peculiar shape of the skull, lordosis of the spinal column, and a general dwarfed appearance. In the long bones of cretins the almost geometrical relation of the rows of ossifying cells found in the normal condition gives place to irregular cells, and growth in the longitudinal direction is stopped. At some of the autopsies, fibrous connective tissues had been found around the epiphyses. Rachitis was a very different process from that seen in cretinism; the cartilage cells proliferated rapidly and very irregularly, and ossification was irregular and failed entirely. Hofmeister removed the thyroids from a number of rabbits. They developed only very slight symptoms, but those operated upon were soon noticed to be smaller than the control animals, their bellies were more protruding, and their skulls broader. After from two to seven months they were killed. Few changes were found in the soft parts; there was no myxedema and no special changes in the viscera. There was a decided retardation in the development of bone in the thyroidectomized animals; the skull and jaw were the least affected. There was a difference in growth of one-third in the tibiae of the thyroidectomized rabbits and the control animals. The case of a boy had been reported, from whom the thyroid had been removed when he was 10 years of age, and who had not grown at all during the eighteen months that he survived the operation.

The etiology of sporadic cretinism was even more obscure than that of the epidemic form. Of the reported cases, several seemed to have been the first children of quite young parents; one or both of the parents were apt to be neurotic; there was often a marked alcoholic taint; there were other children in the family with some other nervous disease or possessing some stigma; and in Edinburgh the prevalence of cretinism was apparently due to squalor and poor food and air.

In conclusion, the speaker emphasized the following points: (1) That the symptoms of cretinism were to be explained as a result of a myxedematous process in the

undeveloped tissues of the infant; (2) the scientific application of the principles of heredity, by such methods as had been used in deaf-mutism, idiocy, and other nervous diseases, would yield similar results in cretinism.

DR. W. M. LESZYNSKY said that he had had under his care a cretin, 25 years of age. It was a case of sporadic myxedematous cretinism, and the mental development was so defective that the man acted like a child of 6 years. There was an absence of thyroid, and there was some myxedema. The man was treated in the hospital for a number of weeks by the thyroid extract, with but very little benefit.

DR. L. SEIGLEITZ said that Ewald in his most recent study of myxedema and cretinism had not been able to accept the thyroid theory alone as the cause of cretinism. He adduced a number of good reasons for believing that this was not the only etiological factor. He thought the excellent result in the case just reported was due to the fact that the child came under treatment at a very early age. It was hardly to be expected that the older cases would respond quickly to the treatment. An interesting point about the development of cretinism was that very many of these children appeared to be perfectly normal until about the time of weaning. This could be explained by the fact that animals who fed on vegetables and milk did not develop myxedema nearly as rapidly as animals fed on flesh.

THE PRESIDENT said that it was now pretty well established that sporadic cretinism occurred chiefly among the poor and amid unsanitary surroundings. The photograph of Dr. Lezaynsky's patient closely resembled one of a family of three cretins living in this city. They were typical cretins, and they had given absolutely negative results from the thyroid treatment. He had seen a considerable increase in the intelligence even in patients of 40 years. There could be no question about the excellency of the results from the thyroid treatment if the child came under observation at the age of 2 or 3 years. Goitre, he said, was widely distributed through certain portions of Canada, yet in persons so afflicted he had never observed any tendency to cretinism or exophthalmic goitre.

DR. NOYES said that he had desired in his paper to direct attention to the great importance of grasping all forms of stigmata. He recalled an article in which had been stated that among the French-Canadians sporadic cretinism and goitre were common.

A CONTRIBUTION TO THE STUDY OF ACUTE ASCENDING
(LANDRY'S) PARALYSIS, WITH EXHIBITION
OF SPECIMENS STAINED BY THE
NISSL METHOD.

DR. PEARCE BAILEY said that the labor of preparing this paper had been equally shared by Dr. James Ewing and himself. Although it was nearly forty years since Landry described the disease which bore his name, there were to-day conflicting views regarding its pathology. The symptoms of the original case had been acute paralysis ascending from the legs and arms, unaccompanied by marked loss of sensation, or by involvement of the sphincters. The intellectual faculties remained unimpaired.

After death no lesions were found in the nervous system to explain these symptoms, and careful microscopical examination of the spinal cord by several observers was absolutely negative. The nerves were not examined.

The authors of this paper said that they had recently seen a case of acute ascending paralysis with extensive lesion in the spinal cord. The patient, a female, 36 years of age, was admitted to the Roosevelt Hospital, November 25, 1895, to the service of Dr. Francis Delafield. The family history was negative. The patient had previously enjoyed good health. On November 19th the disease began with vomiting, which continued until the third day, when she went to bed exhausted. She then began to have occasional attacks of vertigo, and dimness of vision. On November 23d she suddenly lost the power of both legs, and the next day there was paralysis of both arms. Sensation was undisturbed. The temperature was 101.4° at the time of her admission, and the urine examination was negative except for finding a few hyaline casts. The only important point in her personal history was that she had been a rather excessive beer-drinker. There was moderate ptosis on the left side; tactile sensibility was normal; there was no pain or tenderness in arms and legs; the bladder control was normal; the knee-jerks were lost; there was diminished response of the paralyzed muscles to the faradic current. On the 27th she complained of headache and dyspnea; on the 29th the urine contained a trace of albumin; and on the 30th, after a severe attack of pulmonary edema, she died. At the autopsy, which was made twenty hours after death, the serous cavities were normal; the lungs were moderately congested; the bronchial lymph-nodes were normal. The muscle of the heart was rather pale, and there were a few atheromatous patches in the aorta. The liver was reduced in size, and the general outline of the lobules was indistinct. The spleen was large and rather firm; its trabeculae were faintly visible, and the Malpighian bodies imperceptible. The kidneys gave evidence of acute degeneration. Examination of the brain showed considerable distention of the veins and sinuses; there were no thrombi. Sections disclosed a large but not distinctly abnormal blood content. The consistence of the spinal cord was normal; the white matter appeared normal; the gray matter was plainly outlined and very slightly congested. The anatomical diagnosis was congestion and edema of the lungs, acute degeneration of the kidneys, acute hyperplastic splenitis. In the microscopical examination the Nissl stain furnished the most satisfactory result of the many stains tried. It is excellent for studying the changes in the ganglion cells. The vessels of the cauda equina were filled with blood; the axis cylinders of the nerve fibres appeared to be normal. The nerve fibres in the nerve roots appeared to be normal; in some nerve roots there was a slight perivascular infiltration of small round cells. Examination of the spinal cord showed the gray matter to be extensively affected throughout the entire length of the cord; there was intense congestion of all the blood-vessels, especially of the anterior branches of the spinal artery. Nearly all the vessels showed pronounced perivascular infiltration of small round cells. There was a diffused

cellular infiltration of the gray matter, at times extending slightly into the white matter. The central canal appeared not to be especially affected. There was a more or less complete absence of chromophyllic masses in the cells. In some cells the cytoplasm was entirely bereft of chromophyllic bodies, being replaced by fine bluish particles. In the areas where the exudative inflammation was most pronounced, many shrunken cell bodies without visible cell nuclei were recognized with difficulty. In the white matter, where the inflammatory process extended into it from the gray matter, there was moderate perivascular infiltration. In the cervical region of the cord the lesions were most pronounced, while in the sacral region they were the least, many ganglion cells in the anterior horns remaining fairly well preserved. The lesions in the medulla and pons were chiefly marked in the gray matter, and were similar to those described in the cord. The nuclei of the cranial nerves were all more or less damaged, but chiefly in the sixth or seventh nerves. The basal ganglia showed the perivascular lesion and numerous small foci of cellular infiltration. The temporo-sphenoidal lobes were normal. Throughout the cerebellar cortex were found lesions similar to those found in the spinal cord. In the case just reported the clinical symptoms were attributable to most extensive lesions affecting chiefly the gray matter of the spinal cord. The fact that the lesions were but slight in the sacral region explained the persistence of sphincter control.

There were many recorded cases, the speaker said, in which an ascending paralysis, unaccompanied by sensory symptoms, soon involved the bulbar nuclei. An ascending paralysis, pursuing a rapidly fatal course without pronounced sensory symptoms, was a distinct clinical entity. These had always been considered the essential symptoms of Landry's paralysis.

To this paper was appended a table of all the carefully recorded cases, except those published in the Russian and Scandinavian languages and a few old monographs. Several cases had been included which had been hitherto described as acute poliomyelitis anterior.

Fatal acute ascending paralysis might be divided into the following groups: (1) Cases in which no histological changes could be demonstrated in the nervous system; (2) those in which there was an acute exudative inflammation of the cord, medulla, and sometimes of the brain; (3) acute inflammation of the peripheral nerves; (4) acute inflammation, both of the central and peripheral nervous systems. In sixteen of the collected cases there were lesions limited to the cerebro-spinal axis. A consideration of the etiology, symptoms, and pathology of the disease points to the action of a toxic agent as the direct cause of the lesions. The lesions indicated an acute exudative inflammation, such as is usually found in cases having a bacterial origin. The authors had found it impossible to differentiate these various groups by their clinical manifestations. Their conclusions were: (1) That acute ascending paralysis was probably a toxemia in which the poisonous agent affected chiefly the nervous system; (2) that its most common seat was in the spinal cord or medulla, though it might be present in the cortex

and nerve roots; (3) that the lesions in other parts of the cerebro-spinal axis were of a similar nature; and (4) that when the lesion affected the peripheral nerves there was an increase of neuroglia cells.

DR. BEVERLEY ROBINSON said that he had seen only one case of this disease, and that one had been reported some time ago to the Practitioner's Society. In the clinical history of that case there was no evidence of any toxemia. The pathologist who had charge of the case failed to examine the nervous system by the improved methods detailed in the paper, or by bacteriological methods, but he reported that there was little or no evidence of lesion in the spinal cord, although there were some pathological changes in the nerves themselves. The case had run a rapidly clinical course, and the patient had died of edema of the lungs.

DR. C. L. DANA said that as he recalled Dr. Robinson's case the clinical history was clearly one of Landry's paralysis, but there were no careful microscopical or bacteriological examinations reported; hence, though the case was apparently some form of toxic neuritis, there was no proof that the nerve cells were not primarily implicated. Three years ago when discussing the subject with Mr. Victor Horsley the opinion had been expressed that paralytic rabies might be classified clinically as Landry's paralysis, and that probably some of these cases were really examples of rabies. The sections at present under the microscope showed some cellular changes, yet the general pathological picture was that of a very marked vascular trouble—an infection or toxemia. He would say most certainly that the primary changes were vascular, and those in the ganglion cells were secondary. His experience with the Nissl stain had led him to place much less confidence in its revelations than did many others. In almost any brain one could find all sorts of changes in the chromophyllic substance, and the method of preparing the staining and sections made it seem to him almost impossible that there should not be considerable differences in the way in which the various cells took up the coloring substance. The cortex cells in this specimen seemed nearly normal, although there was here evidence of this same vascular irritation. He thought that if the nerves had been examined it would have been found that they had been damaged even more than the nervous system. He recalled a case resembling Landry's paralysis, although running a slower course, in which there had been evidence of nervous and vascular irritation; the history of the case showed it to be rapidly fatal alcoholic neuritis.

DR. B. SACHS said that Landry's paralysis had been buffeted about a great deal by various writers. Fortunately the day had passed when diseases were classified entirely on mere topographical lines. That there was a toxic agent causing Landry's paralysis he thought there could be no doubt, and hence it was to be particularly regretted that a bacteriological examination had been omitted in this and many other cases. Since the bacilli of influenza had been found in cases of spinal-cord affection following that disease, it became incumbent on every careful observer to make a bacteriological examination. He also felt that we should be very careful in making

inferences regarding slight changes in the structure of the cells in specimens stained by Nissl's method. In the case reported in the paper, one of the chief symptoms had been absence of sensory disturbance quite early in the disease. If this one clinical feature must be accepted as essential we could not suppose that the changes which had been described were those chiefly responsible for Landry's paralysis. It was more than probable that the changes occurred not only in the brain, but in the spinal-cord and the peripheral nerves.

DR. GEORGE JACOBY said that if we accepted Landry's definition of the paralysis we could only make a clinical diagnosis, for Landry claimed that there must be a lack of anatomical evidence. He had been struck by the fact that in the case described in the paper the patient was a beer-drinker, and that the symptoms had developed quite rapidly. This had been noted in quite a number of cases. The lesion might be localized in the cells of the spinal cord or in the cortex. The report presented seemed to indicate that in the future we would probably find pathological changes in the cell body analogous to those which had been thus far found in the peripheral nerves. It would seem that we were dealing with a chronic alcoholic intoxication of the central nervous system.

DR. LANDON CARTER GRAY said he thought that the paper just presented was an extremely valuable contribution to the subject of Landry's paralysis. He could recall a number of cases of this disease which could be divided into several groups. Some of these had proved rapidly fatal; some had run a slower course; some had improved and then relapsed. Those which had recovered had subsequently had atrophy of the muscles, and had presented a condition similar to that of poliomyelitis. He had also seen cases of alcoholic neuritis presenting several types—some few had died, some had had obstinate vomiting for days and weeks, some had passed into a miserable condition of invalidism. He could not recall that any of these cases had recovered. The clinical definition of the disease could not be taken as anything more than a guide. Undoubtedly there was an underlying toxemia, and possibly an infection. It seemed to be pretty generally agreed that Nissl's stain was still on trial, and certainly some very serious objections had been made to it, so that our deductions based upon it must be made with great caution.

DR. JOSEPH COLLINS said that the paper just contributed had served to crystallize what had been in our minds—*i.e.*, that Landry's paralysis had been handicapped by a name and a tradition which for years had prevented us from forming a legitimate conception of the pathology of the disease. All must have been impressed with the fact that Landry's paralysis was a disease dependent upon a poison, and that its clinical forms varied as to the part of the nervous system implicated. It had not yet been proved that the disease was one of the spinal cord or of the peripheral nervous system. When it had been said that Landry's paralysis was a disease dependent upon infection, or upon a toxic substance manifesting its action on a well-defined part, or on the entire nervous system, the pathological location of the disease, so far as known, had been stated. In the case reported in the paper the

lesions were universal, hemorrhagic splenitis, parenchymatous nephritis, and an exudative inflammation in the spinal cord, all of which pointed to an infection. The changes in the cord were virtually those of acute anterior poliomyelitis, a disease which was very probably due to some micro-organisms. The underlying condition should not be described as a "toxemia," which meant a primary blood infection, but as toxic. If epidemic cerebro-spinal meningitis and acute anterior poliomyelitis had been shown in a number of instances to have been associated with pyogenic micro-organisms, why should not Landry's paralysis be dependent upon such a condition also?

DR. SACHS said that in almost every case in which the disease had been named after a person who had first described it an unusual reverence had been shown for the symptomatology first reported. Thus, Landry had insisted that there should be bulbar complication, yet this was more or less accidental, although present in most of the cases. It would not be right, it seemed to him, to exclude all those cases in which the process had not extended into the medulla, provided the other symptoms were those of acute ascending paralysis. It would be better to speak of the disease under discussion as an acute infectious ascending paralysis.

THE PRESIDENT said that it seemed to him that the so-called Landry's paralysis was an acute infectious process, which at times affected the spinal cord, and at other times affected the nerves to a greater extent. He could not see how it at all resembled the ordinary cases of even the most acute alcoholic multiple neuritis.

DR. JAMES EWING thought the Nissl stain had been very generally accepted as the best method of studying the pathological changes in the ganglion cells. Dr. Dana's trouble with this stain was probably due to the use of alcohol as a hardening agent; the cells should be treated with bichloride of mercury. The examination of the cauda equina and the nerve roots in this case seemed to absolutely negative the opinion expressed by Dr. Dana that in the nerves, if examined, would have been found even more pronounced changes. We would have to assume that the central nervous system and the peripheral nerves were markedly affected, and yet the intervening portion—the nerve-roots—had escaped. In the case reported, sensory symptoms were almost entirely absent. A careful examination of the literature showed that cases of acute multiple neuritis resembling Landry's paralysis were exceedingly rare. The word "toxemia" had been used advisedly in the paper, for the authors were not ready to state that Landry's paralysis was an acute infectious disease. They used the word "toxemia" because they believed the disease was produced by a toxic agent in the blood which, at least in some cases, was of a bacterial nature.

OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF MEDICAL OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE MONTH ENDING JANUARY 31, 1896.

GARDNER, C. H., Assistant Surgeon. Ordered to examination for promotion January 4, 1896. Granted leave of absence for thirty days, January 15, 1896.

NYDEGGER, J. A., Assistant Surgeon. Ordered to examination for promotion, January 8, 1896.

WIEKES, H. W., Assistant Surgeon. To proceed from New Orleans, La. to Memphis, Tenn., for temporary duty, January 14, 1896.

BANKS, C. E., Passed Assistant Surgeon. To proceed from Washington, D. C., to Boston, Mass., for temporary duty, January 31, 1896.

PETTUS, W. J., Passed Assistant Surgeon. To assume temporary command of Service at Norfolk, Va., January 31, 1896.

GUIERAS, G. M., Passed Assistant Surgeon. To proceed from Gulf Quarantine to Mobile, Ala., for temporary duty, January 18, 1896. To rejoin Station at Gulf Quarantine, January 31, 1896.

STEWART, W. J. S., Assistant Surgeon. Granted leave of absence for ten days, January 27, 1896. Ordered to examination for promotion January 31, 1896.

SPRAGUE, E. K., Assistant Surgeon. Granted leave of absence for twenty days, January 23, 1896.

PROCHAZKA, EMIL, Assistant Surgeon. To proceed from Detroit, Mich., to Chicago, Ill., for temporary duty, January 31, 1896.

WISKES, H. W., Assistant Surgeon. Upon completion of temporary duty at Memphis, Tenn., to return to his station at New Orleans, La., January 17, 1896.

RESIGNATION.

GOODWIN, H. T., Passed Assistant Surgeon. Resignation accepted, to take effect March 5, 1896.

BOARD CONVENED.

Board convened to meet in New York city for the physical examination of candidates for appointment in Revenue Cutter Service. Surgeon W. A. Wheeler (Chairman), and Assistant Surgeon H. S. Cumming (Recorder), January 29, 1896.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT, U. S. ARMY, FROM FEBRUARY 4, 1896, TO FEBRUARY 24, 1896.

The leave of absence on surgeon's certificate of disability, granted Captain William O. Owen, Jr., Assistant Surgeon, U. S. Army, is extended one month on account of sickness.

First Lieutenant William W. Quinton, Assistant Surgeon, will be relieved from duty at Fort Riley, Kansas, and ordered to Fort Logan, Colorado, for temporary duty.

Captain C. N. Berkeley Macauley, Assistant Surgeon, died February 6, 1896, at Fort Logan, Colorado.

Major Joseph B. Girard, Surgeon, will be relieved from duty at the Presidio of San Francisco, Cal., and ordered to Jefferson Barracks, Missouri, for duty at that post, relieving Major Robert H. White, Surgeon.

Major White, upon being relieved from duty at Jefferson Barracks, will proceed to Presidio of San Francisco, Cal., for station.

First Lieutenant William W. Quinton, Assistant Surgeon, is relieved from temporary duty at Fort Logan, Colorado, and ordered to Fort Grant, Arizona, for duty at substation San Carlos, Arizona, relieving First Lieutenant Paul F. Straub, Assistant Surgeon.

Lieutenant Straub on being thus relieved, is ordered to Angel Island, Cal., for duty at that station, relieving First Lieutenant Charles E. B. Flagg, Assistant Surgeon.

Lieutenant Flagg upon being thus relieved, is ordered to Fort Du Chesne, Utah, for duty at that post, relieving Captain Henry D. Snyder, Assistant Surgeon.

Captain Snyder, upon being thus relieved, is ordered to Fort Ethan Allen, Vermont, for duty at that station.

CHANGES IN THE MEDICAL CORPS OF THE U. S. NAVY, FROM FEBRUARY 7, 1896, TO FEBRUARY 22, 1896.

February 7.—LOWNDES, C. H. T., Passed Assistant Surgeon, detached from marine rendezvous, San Francisco, and granted one month's leave.

BAGG, C. P., Assistant Surgeon, detached from the "Vermont," and ordered to the marine rendezvous, San Francisco, Cal.